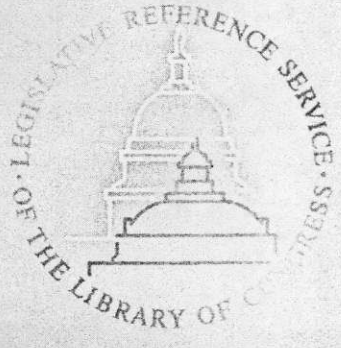
CB 150

F 381

THE LIBRARY OF CONGRESS

LEGISLATIVE REFERENCE SERVICE

WASHINGTON, D. C.



ERRONEOUS PREDICTIONS AND NEGATIVE COMMENTS CONCERNING EXPLORATION, TERRITORIAL EXPANSION, SCIENTIFIC AND TECHNOLOGICAL DEVELOPMENT; Selected Statements

NANCY T. GAMARRA
Research Assistant in National Security
Foreign Affairs Division

May 29, 1969
Revised

LIBRARY
SANTA BARBARA
UNIVERSITY OF CALIFORNIA

FEB 1 1971

GOVT. PUBLICATIONS DEPT.

TABLE OF CONTENTS

Page

I. Exploration and Territorial Expansion..... 1

1. Christopher Columbus..... 1
2. Louisiana Territory..... 2
3. Alaska..... 4
4. Grand Canyon..... 11
5. Virgin Islands and St. Thomas..... 12

II. Scientific 13

1. Army Medical Library and Museum..... 13
2. Geological Survey..... 14
3. National Zoological Park..... 16
4. Smithsonian Institution..... 17

III. Scientific and Technological Developments..... 21

1. Aircraft..... 21
2. Canals..... 25
3. Darwin's theory of evolution..... 25
4. Electricity..... 28
5. Ford, Henry and the Ford Motor Company..... 31
6. Galileo's discovery of Jupiter's moons by telescope..... 32
7. Gas Lighting..... 32
8. Goddard, Robert..... 33
9. Highways..... 34
10. Inventions (General)..... 34
11. Medicine..... 35
12. Military Technology..... 37
13. Ohm's Law..... 40
14. Radio..... 41
15. Railroads and locomotives..... 42
16. Steamships..... 46
17. Telegraphy..... 47

ERRONEOUS PREDICTIONS AND NEGATIVE COMMENTS CONCERNING EXPLORATION, TERRITORIAL EXPANSION, SCIENTIFIC AND TECHNOLOGICAL DEVELOPMENT

Selected Statements

I

Exploration and Territorial Expansion

1. Christopher Columbus

Opposition to plan of Columbus to sail west to find a shorter route to the Indies:

A committee, organized in 1486 at the command of King Ferdinand and Queen Isabella of Spain and headed by Fray Hernando de Talavera to study Columbus' plans to sail west to find a shorter route to the Indies, reported in 1490 that a voyage such as Columbus contemplated was impossible because

> "...(1) A voyage to Asia would require three years. (2) The Western Ocean is infinite and perhaps unnavigable. (3) If he reached the Antipodes (the land on the other side of the globe from Europe) he could not get back. (4) There are no Antipodes because the greater part of the globe is covered with water, and because Saint Augustine says so....(5) Of the five zones, only three are habitable. (6) So many centuries after the Creation it was unlikely that anyone could find hitherto unknown lands of any value."

According to Bartolome de La Casas, a biographer and contemporary of Columbus, the committee

> "...'judged his promises and offers were impossible and vain and worthy of rejection,' and 'that it was not a proper object for their royal authority to favor an affair that rested on such weak foundations, and which appeared uncertain and impossible to any educated person, however little learning he might have.'"

Source: Morison, Samuel E. Admiral of the Ocean Sea, a Life of Christopher Columbus. Boston, Little, Brown, 1942. pp. 97-98.

* * * * * *

2. Louisiana Territory

Opposition to the acquisition of Louisiana Territory (1803):

"...as to the Louisiana, this new, immense unbounded world, if it should ever be incorporated into this Union, which I have no idea can be done but by altering the Constitution, I believe it will be the greatest curse that could at present befall us; it may be productive of innumerable evils, and especially of one that I fear even to look upon. Gentlemen on all sides, with very few exceptions, agree that the settlement of this country will be highly injurious and dangerous to the United States; but as to what has been suggested of removing the Creeks and other nations of Indians from the eastern to the western banks of the Mississippi, and of making the fertile regions of Louisiana a howling wilderness, never to be trodden by the foot of civilized man, it is impracticable....you had as well pretend to inhibit the fish from swimming in the sea as to prevent the population of that country after its sovereignty shall become ours. To every man acquainted with the adventurous, roving, and enterprising temper of our people, and with the manner in which our Western country has been settled, such an idea must be chimerical. The inducements will be so strong that it will be impossible to restrain our citizens from crossing the river. Louisiana must and will become settled, if we hold it, and with the very population that would otherwise occupy part of our present territory. Thus our citizens will be removed to the immense distance of two or three thousand miles from the capital of the Union, where they will scarcely ever feel the rays of the General Government; their affections will become alienated; they will gradually begin to view us as strangers; they will form other commercial connexions, and our interests will become distinct.

These, with other causes that human wisdom may not now foresee, will in time effect a separation, and I fear our bounds will be fixed nearer to our houses than the waters of the Mississippi. We have already territory enough, and when I contemplate the evils that may arise to these States,

from this intended incorporation of Louisiana into the Union, I would rather see it given to France, to Spain, or to any other nation of the earth, upon the mere condition that no citizen of the United States should ever settle within its limits, than to see the territory sold for an hundred millions of dollars, and we retain the sovereignty."

Source: Statement of Senator Samuel White. Annals of Congress, 8th Congress, 1st session, 1803-1804. pp. 33-34.

* * * * * *

"...The vast and unmanageable extent which the accession of Louisiana will give to the United States; the consequent dispersion of our population, and the destruction of that balance which it is so important to maintain between the Eastern and the Western States, threatens, at no very distant day, the subversion of our Union."

Source: Statement of Representative Roger Griswold. Annals of Congress, 8th Congress, 1st session, 1803-1804. p. 466.

* * * * * *

"...He did, however, fear those consequences; he feared the effects of the vast extent of our empire; he feared the effects of the increased value of labor, the decrease in the value of lands, and the influence of climate upon our citizens who should migrate thither. He did fear (though this land was represented as flowing with milk and honey) that this Eden of the New World would prove a cemetery for the bodies of our citizens."

Source: Statement of Representative Thomas Griffin. Annals of Congress, 8th Congress, 1st session, 1803-1804. p. 443.

* * * * * *

3. Alaska

Opposition to the purchase of Alaska:

"...The possession of this Russian territory can give us neither honor, wealth, or power, but will always be a source of weakness and expense, without any adequate return. The annual cost of holding this country will be about as follows:

1. Interest on purchase money in currency, say $10,000,000 at seven and three tenths per cent.....	$730,000
2. Annual cost of government, with military power to protect it, not less than.....	3,000,000
Total yearly expenses.....	$3,730,000

Where is the advantage or profit that can justify this great annual outlay?"

"...[There is] no excuse for the unauthorized and unwarrantable action of the Secretary of State.

Who gave him the right to squander millions of the money of the people at this time of general financial distress, and to so complicate us with a foreign Power that it was urged as an excuse why the treaty should be ratified that we would offend Russia if we did not? ...If necessary to purchase the friendship of Russia in this way we shall next be told that to preserve the friendship of England or France we must buy some of their worthless possessions, and if the Secretary of State sees proper to put us in for a few hundred millions the people who pay the bills must not complain."

"...The propriety of its acquisition had never been mooted or discussed anywhere in the country. No newspaper had ever advocated it. No public man had ever publicly advocated it. Nobody demanded it. Nobody wanted it. Nobody had any information in regard to it. The press and the people of the Pacific coast, though generally considered as pretty wide-awake and knowing what they wanted, had not

thought it was a desirable thing that we should possess it. Yet in the absence of all these things; in the absence of any knowledge of the country purchased the Secretary of State undertakes to wrench from our tax-ridden people the large sum of $7,200,000 in gold regardless of their wishes and in wanton disregard of the general welfare."

"Are you to find your reimbursement in the mineral productions of the country? If so, the evidence of their existence is unknown. Some years ago a report of the discovery of gold on the river Stikine in this territory sent a large number of California miners there, but after a thorough prospecting of the country they returned home bitterly disappointed and without any gold. Other metals in any quantity remain to be discovered. W. H. Dall, chief of the scientific corps of the Western Union Telegraph Company, reports that after many months' search he had found 'a small seam of coal thirty miles below the bend of the river Youkon,' but does not intimate that it is of any value. But I again inquire, why go to these inhospitable regions in pursuit of the precious metals when we have mines that a thousand years cannot exhaust nearer home?"

"...No gold has ever been discovered in Russian America. The little gold that has been discovered on the Stochin river has been far east of the borders of Russian America, at least one hundred miles. No silver has been discovered there. No lead has been discovered there. There is no proof that any copper has been discovered.... There is no proof that any metal, precious or base, has yet been discovered there."

Source: Statements of Representative Cadwalader C. Washburn. Congressional Globe, 40th Congress, 2d session, 1868. pp. 136-138, 1875.

"...I implore the members of this House to remember that the nation is groaning under a debt of more than two thousand five hundred million dollars; that the acquisition of these Russian possessions involves an expense of ten million dollars in currency, now called for with an enormous prospective cost and outlay for their government and protection perhaps equal to the interest on fifty millions more, that we do not need the Territory, and then determine whether they will heap this additional burden upon their constituents....Pay this money, and tomorrow a treaty for the purchase of St. Thomas and St. John's, another for St. Croix, and still another for Greenland will be thrust in our faces and money asked for."

"...The people of this country do not want these Russian possessions. If submitted to them they would reject the treaty by a majority of millions. Alaska, with the Aleutian islands, is an inhospitable, wretched, and God-forsaken region, worth nothing, but a positive injury and incumbrance as a colony of the United States."

"...has this country any intrinsic value, excepting for purposes of fortification or defense, or possessed of mineral value, and then only to a limited extent? No country on this earth has yet been found of the least possible worth or importance unless it was capable of profitable agricultural improvement. Alaska is not, nor are the Aleutian Islands.

"In latitude 55° south of Sitka, "ground ice" as it is called, is found at any time of the year six or eight feet below the surface. It is evident, therefore, that successful agriculture can never be carried on in this region. That it will never be populated by an enterprising people is equally certain. Government, for special purposes, might force into existence a few sickly settlements, but they would no more compare with the flourishing towns that are springing into

existence all over the rich prairies of the West than the sickly shrubs of the Conservatory in front of this Capitol can compare with the luxuriant growth of the tropics. We have already a territory sufficiently extensive to sustain a population of hundreds of millions. Texas, no more densely populated than Massachusetts is to-day, would contain all the inhabitants of the United States. The Territories of Colorado, Dakota, Nebraska, New Mexico, Washington, and Utah would sustain one hundred and sixty millions of people, with no more to the square mile than Massachusetts now averages."

"Of what possible commercial importance can this territory be to us? The islands can never be made a stopping place for vessels passing across the Pacific ocean from one continent to the other. The track of steamers to China and Japan is now a thousand miles south of them, and although it might not materially lengthen the distance to touch at Oonalaska, there are climatic reasons which prevent it. The perpetual fogs in which these regions are enveloped render regular navigation by ocean steamers highly dangerous and utterly impracticable."

"Why, then, was this territory purchased? Commercially and geographically it bears the same relation to the western shores of North America that Greenland does to the eastern. It can be of no more service, nor can it be of any more importance in the navigation of the Pacific than Greenland has been in the navigation of the Atlantic. Nobody asked for it, and nobody wanted it....It is not easy, then, to divine the motives which prompted the purchase of Alaska, a barren, unproductive region, covered with ice and snow, or shrouded in perpetual fogs and storms, embracing an area, nearly one third of which is within the Arctic circle, of three hundred and ninety-four thousand square miles, with a coast line, including bays and islands, of more than eleven thousand miles; with a population estimated at seventy-five thousand, about ten thousand of whom are Siberian malefactors, half-breeds, Kodiaks, Aleoots, and a very few Russians, not one of whom

can speak our language, who, by the terms of this treaty, are made citizens of the United States, and the balance composed entirely of Indians."

Source: Statements of Representative Orange Ferriss. Congressional Globe, 40th Congress, 2d session, 1868. pp. 3663, 3666-3668.

* * * * * *

"...'The whole coast to Sitka, and far northward, exhibits one uniform topography and similar climatic conditions, being rainy and foggy, and the growth is nearly or quite the same throughout.

'Unfortunately, this vast region of islands and continental coast is not bordered at the bases of these lofty-timbered ranges with sloping or level bottoms; but is gashed with precipitous and inaccessible gorges, the peaks for the most part being capped with snow, which, melting in summer, together with the continual rains, make every rockless footstep a sphagnous miry morass. Altitude passes for naught here; even the mountains are miry to their tops.'"

Source: Extract from Executive Document No. 177 as quoted by Representative Orange Ferriss, Congressional Globe, 40th Congress, 2d session, 1868. p. 3667.

* * * * * *

"...it clearly appears, that in this region no attempts were ever made, and no necessity ever occurred, to introduce any system of land-ownership; the country occupied by savages is too vast; they used to camp in certain fit places, generally marked by mountains, rivers, and streams, each having its name, but no fixed boundaries whatever, and their migrations are guided by wild instinct and unbounded will. All this region has neither past nor

present, and it may be confidently said of the future that it is far and impenetrable. Every attempt of civilizing that country will stumble against unconquerable obstacles; the complete absence of local topography, the wild character of the savages, and no less wild character of nature; but, above all, the rigor and inconstancy of climate. To achieve any good results for the future of that country, by means of conquest and violence, would hardly be possible; to drive the savages further into the interior of the American continent, however difficult, would be possible; but this plan will be connected with irrecoverable money and material losses; the more so, that a civilized population will never be attracted to that country; there can be expected speculators, but no permanent settlers; there can be expected no civilized population, no permanent industry, but rather spoliators of the natives, and depredatory working out of the riches as well on the surface as in the womb of the earth. Such system can devastate, but not organize the country."

Source: Extract from Memorandum Descriptive of the Russian Imperial System of Russian America, Division of Property, etc., as quoted by Representative Orange Ferriss, Congressional Globe, 40th Congress, 2d session, 1868. p. 3667.

* * * * * *

"In support of the proposition of the utter worthlessness of this territory there are several general tests of a most important and convincing character. Conclusive proof of it is that Russia would sell her territory. If she would sell it at all, she would probably have given it away. If it was not valuable to her, it will never prove of any value to us. Russia is not a Power to surrender a foothold upon earth unless it should be an actual and annoying burden to her."

"The fact of the want of population in Alaska is another conclusive argument upon the proposition maintained. She has five hundred and seventy thousand square miles of area; eleven thousand miles of coast line, including bays and harbors; and besides her Indians only about nine thousand of all other inhabitants. It has taken toward a century of the rule of Russia to have got into that country even as much as this; so that we shall pay over seven hundred dollars for our acquired sovereignty over each and every civilized and half-civilized creature in that land. Why has not Alaska a large population? If what is said in her behalf was not founded in mere imagination, she would, instead of this little people, have had population enough to constitute her an empire."

"The want of a demand for the annexation of this country in an expression of the popular will is an argument against it. The people of our country have a belief about this Arctic region which cannot be easily removed. Where are your petitions and your public demonstrations in behalf of an acceptance of Alaska? Where are any indications or movements among your mercantile classes, in your Boards of Trade, and other kindred organizations, which are always so quick and keen in all matters of population, wealth, and trade? The press of our country is against this purchase or annexation. The proposition has met with ridicule and opposition in most of the public papers except where there has been some special interest or motive for a contrary course. While our countrymen have been anxious for acquisitions of territory,... who has heard any popular voice or expression in all the length and breadth of our country in behalf of Alaska? Why does not an American population pour itself in upon her? Where are the adventurers and speculators and men of enterprise who strike for a new country to make the first fortunes and obtain the first foothold there? Where are the classes of men who build up a city in the western States and Territories almost in a day? How many of them

have followed our flag to Alaska? They will never go, Mr. Chairman. Instead of an Alaskian enthusiasm and fever among the American masses the country was struck with wonder and amazement at the proposition of such an acquisition of worthless territory."

"Two of the canons of Jefferson's code of life might well be invoked in the consideration of the question before us: 'Never spend your money before you have it.' We certainly have no millions now for such an investment. 'Never buy what you do not want because it is cheap; it will be dear to you.' If the seven millions we pay now should be cheap even, the future millions to be expended would certainly make the purchase dear to us."

Source: Statements of Representative John A. Peters. Congressional Globe, 40th Congress, 2d session, 1868. pp. 3668-3669.

* * * * * *

4. Grand Canyon

"...The region last explored is, of course, altogether valueless. It can be approached only from the south, and after entering it there is nothing to do but leave. Ours has been the first, and will doubtless be the last, party of whites to visit this profitless locality. It seems intended by nature that the Colorado river, along the greater portion of its lonely and majestic way, shall be forever unvisited and undisturbed."

Source: U. S. Congress, House. Executive Document No. 90. Report upon the Colorado River of the West, Explored in 1857 and 1858 by Lt. Joseph C. Ives, Corps of Topographical Engineers. 36th Congress, 1st session. Washington, U. S. Government Printing Office, 1861. p. 110.

* * * * * *

5. Virgin Islands and St. Thomas

Opposition to acquisition of Virgin Islands in 1867:

"...Emboldened by his success in this Russian purchase [Alaska], report has it that, having exhausted the regions of perpetual snow and ice, he [Secretary of State] has turned his attention to the tropics, and has negotiated another treaty proposing to pay a still larger sum, also in gold, to purchase if possible a more worthless possession than Russian America....If it should ever come to the point when we are asked to make an appropriation to pay for it I will attempt to demonstrate the utter worthlessness of an acquisition made to meet the pretended wants of our Navy in a region where tornadoes and earthquakes are the constant fear of the inhabitants, and where the yellow fever prevails all the year around."

Source: Statement of Representative Cadwalader C. Washburn. Congressional Globe, 40th Congress, 2d session, 1867. p. 135.

* * * * * *

"...I cannot imagine what good can accrue to a man at St. Thomas if it be not the good of amassing money. It is one of the hottest and one of the most unhealthy spots among all these hot and unhealthy regions. I do not know whether I should not be justified in saying that of all such spots it is the most hot and the most unhealthy."

"...the peculiarity of St. Thomas is this: that the harbor is ten times more fatal than the town. It is that hole up by the coaling wharves which sends so many English lads to the grave."

"...As seen from the harbor the town looks like a panorama exquisitely painted. The air is thin and transparent, and every line shows itself clearly. As so seen the town of St. Thomas is certainly attractive. But it is like the Dead sea fruit: all the charm is gone when it is tasted. Land there and the beauty vanishes."

Source: Trollope, Anthony. The West Indies and the Spanish Main. New York, Harper, 1860. pp. 232, 234.

* * * * * *

II

Scientific Institutions

1. Army Medical Library and Museum

Opposition to establishment of Army Medical Library and Museum:

The following statement was made by Mr. O. B. Potter in the House of Representatives on February 16, 1865 in opposition to H. 48 which would provide for construction of a building to house the records, library, and museum of the U. S. Army Medical Department:

"...I confess I have the gravest doubts as to the propriety of this project. I think it will end in a national library of medicine, a national collection of medical specimens, and finally a national college of medicine, here at the capital. It seems to me that if we are to do this we may just as well enter upon any other and all other branches of science, and erect buildings for them, and establish libraries, and gather specimens for them as national matters....

It will do more than that, sir; this library and museum will end at last in a staff of officers to take care of it and at the national expense, and an annual appropriation will be demanded to support and continue it forever.... I do not believe that we are to gain by preserving the relics and bones or wounds caused by the war at any one place in our capital. I wish they were all buried and covered all over with green grass and hidden from sight forever."

Source: Rhees, William Jones. The Smithsonian Institution; Documents Relative to its Origin and History. Smithsonian Miscellaneous Collections, Vol. XLII. Washington, U. S. Government Printing Office, 1901. pp. 934-935.

* * * * * *

2. Geological Survey

Opposition to appropriations for the Geological Survey:

Remarks made during debate on appropriations for Geological Survey, FY 1893, in which suggestion is made that the Survey expenditures be reduced, even that the Survey be abolished:

"...we ought to repeal or to modify those laws that provide for expenditures of money not needed for any governmental purpose, and especially ought to put in the knife where moneys are expended that are not necessary to carry on the Government, not necessary for the preservation of order, or for the protection of life or liberty or property. Apply that rule to this Geological Survey, that has been spending for years over a half a million dollars annually....counting the expenses of this and other bureaus, we are expending to-day on science twenty times more than any government in the world."

"...About 1853 there was a law passed that abolished a geological survey which had been established by the United States Government. That survey had started out just as this one has, but it never got so far. The statesmen of that day saw at once how extravagant it was to become, and they promptly abolished it. We should do the country a service if we should abolish this."

Source: Statement of Representative Hilary A. Herbert. Congressional Record, May 18, 1892, 52d Congress, 1st session. pp. 4389-4390, 4395.

* * * * * *

Criticism of the Geological Survey's paleontological studies:

"...What is paleontology? It is the science of ancient fossils. These fossils or rocks are picked up by parties in the field, brought here, and investigated in the laboratories in Washington.

In this manner scientists weave out eventually what they call the story of the rocks; thus they solve the problems of the past....What practical use has the Government for paleontology? What function of the Government is carried on by means of paleontology? Not only has the Government no use for it as a government, but paleontological work is not even necessary to the proper construction of a geological map."

Source: Statement of Representative Hilary A. Herbert. Congressional Record, May 18, 1892, 52d Congress, 1st session. p. 4390.

* * * * * *

3. National Zoological Park

Opposition to appropriation for National Zoological Park:

> "...I do not believe the American people, hundreds and thousands of whom are to-day without homes, ought to be taxed to afford shelter and erect homes for snakes, raccoons, opossums, bears, and all the creeping and slimy things of the earth.

Source: Remarks of Representative Snodgrass. Congressional Record, 52d Congress, 1st session, 1892. p. 4238.

* * * * * *

> "...So far as I am concerned I do not believe that it is ever proper to tax men and women to support monkeys and bears, and if the Treasury vaults were bursting open with the money that has already been wrongfully taken from the people, I should say, rather than misspend it after this fashion, let us emancipate the people from taxation....it is indeed time to call a halt and to relieve the people from burdens so useless as this. This and the subsequent paragraphs in this bill provide for a tax of $29,000 upon the people, with no corresponding benefit, unless they will be benefited to know that their public servants are spending their money to support parks and animals."

> "...I sat here and saw this House vote down a proposition to buy schoolbooks for the children of the public schools, and now for the sake of education, as they claim, they propose to maintain a bear garden!...Sir, what man will be wiser because you maintain bears and monkeys and snakes in a public park here? What woman will derive refinement or grace from such an institution? What child will be taught to tread

the path of virtue our fathers trod before us by this particular process of education?"

Source: Remarks of Representative J. W. Bailey, Congressional Record, 52d Congress, 1st session, 1892. pp. 4237, 4239.

* * * * * *

4. Smithsonian Institution

Opposition to certain appropriations for the Smithsonian Institution:

In debate in the Senate (February 21, 1861) on an item in the Sundry Civil Appropriation Bill for 1862 that would appropriate money to the Smithsonian Institution for preservation and distribution of the collections of the exploring and surveying expeditions of the government, the following opposition to the appropriation was voiced by Senator Simon Cameron:

"...What do we care about stuffed snakes, alligators, and all such things? ...Here is an appropriation of $6,000 for a most worthless purpose, and what right have we to appropriate it? When we are all talking about the distresses of the country; when we do not know how much country we shall have in a few days; when the Treasury is empty--not a dollar to pay even members of Congress, to pay laborers out of doors--we are to appropriate $6,000 or $10,000 to preserve a parcel of what you call scientific specimens. A Senator over the way said they were toads and snakes, and I have no doubt they are that sort of thing. They are no use to anybody now; they have served their day.

I am tired of all this thing called science here....We have spent millions in that sort of thing for the last few years, and it is time it should be stopped."

Source: Rhees, William Jones. The Smithsonian Institution; Documents Relative to its Origin and History. Smithsonian Miscellaneous Collections, Vol. XLII. Washington, U. S. Government Printing Office, 1901. pp. 623, 625-626.

* * * * * *

During this same debate, Senator John P. Hale made the following criticism:

"...I have devoted some time every year, more or less, to finding out what on earth that Smithsonian Institution was for; I have had friends who have visited Washington, who have told me that they were going to examine it to find out; and I have asked them repeatedly, if any of them had found it out, to tell me. The New York Tribune...said that it was a sort of lying-in hospital for literary valetudinarians. ...So far as I am concerned in the lot of humanity, they have never distributed knowledge enough to me to let me know what the thing is for or what it does. In addition to the $36,000 which it has of its annual income from its funds, you propose now to appropriate $10,000 more for preserving the collections of the exploring and surveying expeditions of the Government, and for the distribution of the collections of the exploring expeditions, and the construction of additional cases to receive such collections as may be retained by the Government....I am opposed to the whole of it. I think it is wrong."

Source: Rhees, William Jones. The Smithsonian Institution; Documents Relative to its Origin and History. Smithsonian Miscellaneous Collections, Vol. XLII. Washington, U. S. Government Printing Office, 1901. pp. 617-618.

* * * * * *

Statement of Mr. Lewis Selye in the House of Representatives on February 28, 1868, concerning the Smithsonian Institution during consideration of the Civil Appropriation Bill for FY 1869:

> "...I would like to know of what this Institution consists. I would like the gentleman from New York [Mr. Pruyn] or the gentleman from Vermont [Mr. Poland] to tell us how many of his constituents ever saw this Institution or ever will see it or ever want to see it? It is enough to make any man or woman sick to visit that Institution. No one can expect to get any benefit from it."

Source: Rhees, William Jones. The Smithsonian Institution; Documents Relative to its Origin and History. Smithsonian Miscellaneous Collections, Vol. XLII. Washington, U. S. Government Printing Office, 1901. p. 672.

* * * * * *

Statement by Mr. Andrew Johnson in the House of Representatives on January 5, 1848, when opposing the printing by the Congress of the annual report of the Smithsonian:

> "...Congress were called upon to appropriate sum after sum for printing and for other expenses in getting up this Institution, which was to result in no good to the Government or the country. What good could result from this Institution, with its peculiar organization? Why, it would have been much better, and would no doubt have fulfilled the good intentions and motives of the man's heart, had he [Smithson] bequeathed this sum to the United States to be expended in erecting schoolhouses of some description in this District, and in the

districts throughout the country, in which the common children of the country could be educated."

Source: Rhees, William Jones. The Smithsonian Institution; Documents Relative to its Origin and History. Smithsonian Miscellaneous Collections, Vol. XLII. Washington, U. S. Government Printing Office, 1901. p. 465.

* * * * * *

Opposition to establishment of Smithsonian Institution:

The following remarks were made by Mr. William Allen in the Senate debate on January 21, 1845, relative to the Bill (S. 18) providing for establishment of the Smithsonian Institution:

"The Constitution did not give us charge of the mind and genius of the American people. It was the privilege of a despot, not of a free government, to control the mind and direct the genius of the people; and he wished to see no institution for that purpose established in the capital of the United States, by which the American people are to think, and read, and speak."

Source: Rhees, William Jones. The Smithsonian Institution; Documents Relative to its Origin and History. Smithsonian Miscellaneous Collections, Vol. XLII. Washington, U. S. Government Printing Office, 1901. p. 315.

* * * * * *

III

Scientific and Technological Developments

1. Aircraft

Samuel Langley's experiments with airplanes:

Comment in the New York Times one week before the successful flight of the Kitty Hawk by the Wright brothers:

> "...We hope that Professor Langley will not put his substantial greatness as a scientist in further peril by continuing to waste his time, and the money involved, in further airship experiments. Life is short, and he is capable of services to humanity incomparably greater than can be expected to result from trying to fly.... For students and investigators of the Langley type there are more useful employments."

Source: New York Times, December 10, 1903, editorial page.

* * * * * *

Possibility of building a successful flying machine:

> "Outside of the proven impossible, there probably can be found no better example of the speculative tendency carrying man to the verge of the chimerical than in his attempts to imitate the birds, or no field where so much inventive seed has been sown with so little return as in the attempts of man to fly successfully through the air. Never, it would seem, has the human mind so persistently evaded the issue, begged the question and, 'wrangling resolutely with the facts', insisted upon dreams being accepted as actual performance, as when there has been proclaimed time and again the proximate and perfect utility of the balloon or of the flying machine."

"...Should man succeed in building a machine small enough to fly and large enough to carry himself, then in attempting to build a still larger machine he will find himself limited by the strength of his materials in the same manner and for the same reasons that nature has."

"...there is no basis for the ardent hopes and positive statements made as to the safe and successful use of the dirigible balloon or flying machine, or both, for commercial transportation or as weapons of war, and that, therefore, it would be a wrong, whether wilful or unknowing, to lead the people and perhaps governments at this time to believe the contrary;..."

Source: Melville, Rear Admiral George W. The Engineer and the Problem of Aerial Navigation. North American Review, December 1901. pp. 820, 825, 830-831.

* * * * * *

"...The limit which the rarity of the air places upon its power of supporting wings, taken in connection with the combined weight of a man and a machine, make a drawback which we should not too hastily assume our ability to overcome. The example of the bird does not prove that man can fly. The hundred and fifty pounds of dead weight which the manager of the machine must add to it over and above that necessary in the bird may well prove an insurmountable obstacle to success."

"The practical difficulties in the way of realizing the movement of such an object are obvious. The aeroplane must have its propellers. These must be driven by an engine with a source of power. Weight is an essential quality of every engine. The propellers must be made of metal, which has its weakness, and which is liable to give way when its speed attains a

certain limit. And, granting complete success, imagine the proud possessor of the aeroplane darting through the air at a speed of several hundred feet per second! It is the speed alone that sustains him. How is he ever going to stop? Once he slackens his speed, down he begins to fall. He may, indeed, increase the inclination of his aeroplane. Then he increases the resistance necessary to move it. Once he stops he falls a dead mass. How shall he reach the ground without destroying his delicate machinery?"

Source: Newcomb, Simon. Outlook for the Flying Machine. The Independent, October 22, 1903. pp. 2508, 2510-2511.

* * * * * *

Simon Newcomb also wrote:

"...The demonstration that no possible combination of known substances, known forms of machinery and known forms of force, can be united in a practical machine by which man shall fly long distances through the air, seems to the writer as complete as it is possible for the demonstration of any physical fact to be."

Source: Clarke, Arthur C. Profiles of the Future. New York, Harper and Row, 1962. pp. 2-3.

* * * * * *

Limitations of airplanes:

"...The machines will eventually be fast, they will be used in sport, but they are not to be thought of as commercial carriers. To say nothing of the danger, the sizes must remain small and the passengers few, because the weight will, for the same design, increase as the cube of the dimensions, while the supporting surfaces will only increase as the square. It is true that

when higher speeds become safe it will require fewer square feet of surface to carry a man, and that dimensions will actually decrease, but this will not be enough to carry much greater extraneous loads, such as a store of explosives or big guns to shoot them. The power required will always be great, say something like one horse power to every hundred pounds of weight, and hence fuel can not be carried for long single journeys."

Source: Chanute, Octave. Aerial Navigation. Popular Science Monthly, March 1904. p. 393.

* * * * * *

The astronomer, William H. Pickering, said with regard to air-flight after the invention of the airplane:

"...The popular mind often pictures gigantic flying machines speeding across the Atlantic and carrying innumerable passengers in a way analogous to our modern steamships....It seems safe to say that such ideas must be wholly visionary, and even if a machine could get across with one or two passengers the expense would be prohibitive to any but the capitalist who could own his own yacht.

Another popular fallacy is to expect enormous speed to be obtained. It must be remembered that the resistance of the air increases as the square of the speed and the work as the cube.... If with 30 h.p. we can now attain a speed of 40 m.p.h., then in order to reach a speed of 100 m.p.h. we must use a motor capable of 470 h.p...it is clear that with our present devices there is no hope of competing for racing speed with either our locomotives or our automobiles."

Source: Clarke, Arthur C. Profiles of the Future, New York, Harper and Row, 1962. pp. 3-4.

* * * * * *

2. Canals:

Panama Canal:

"The Panama Canal is actually a thing of the past, and Nature in her works will soon obliterate all traces of French energy and money expended on the Isthmus."

Source: 50 years ago in the Scientific American. Scientific American, January 1941, p. 4.

* * * * * *

Suez Canal:

"...All mankind has heard much of M. Lesseps and his Suez Canal....I have a very strong opinion that such canal will not and cannot be made; that all the strength of the arguments adduced in the matter are hostile to it; and that steam navigation by land will and ought to be the means of transit through Egypt."

Source: Trollope, Anthony. The West Indies and the Spanish Main. New York, Harper and Brothers, 1860. p. 331.

* * * * * *

3. Darwin's theory of evolution

Criticism of Darwin's theory:

Louis Agassiz, professor of geology and zoology at Harvard University wrote the following:

"My recent studies have made me more adverse than ever to the new scientific doctrines which are flourishing now in England. This sensational zeal reminds me of what I experienced as a young

man in Germany, when the physio-philosophy of Oken had invaded every centre of scientific activity; and yet, what is there left of it? I trust to outlive this mania also."

Source: Agassiz, Elizabeth C. (Ed.). Louis Agassiz, His Life and Correspondence. Cambridge, Houghton, Mifflin and Co., 1893. p. 647.

* * * * * *

"...Have they [geologists] found fossil remains which they can prove to belong to the progenitors of the eagle, or of the horse, or of the donkey, or the whale--of any creature, in short, from a mouse or a mole up to a man? I am aware, indeed, that fossil remains of animals thought to resemble the horse have been found, but Mr. Darwin might as easily prove that the donkey is descended from the dromedary, as that the horses of the present day are descended from the Hippotherium....Why is it... that naturalists do not come into the light of existing facts, and point out to us some living species that has sprung from some other living species? They know that existing facts would not bear them out. Hence they grope their way, by the aid of fossil bones, millions of ages back into the past; and there, amid its pitchy darkness, they fancy they see the desired transformations taking place."

"...What, then, is the sum of the changes which Mr. Darwin is able to point to within the historic period as tending to prove his hypothesis? It amounts absolutely to nothing.

...There are...many animals living now which can be compared with their progenitors of the 3,000th generation back. Can Mr. Darwin show, then, in the case of any one of them, that, by successive variations accumulated during 3,000 generations, it has sensibly advanced towards some higher form? Can he show that 3,000 generations have, in any instance, done aught towards

proving the truth of his hypothesis? It appears that he cannot point to a single such case as yielding him support. 3,000 generations have done literally nothing for his hypothesis. If so, neither would 30,000, nor 300,000; for,...if you multiply nothing by a million, it will be nothing still."

"There are...absolutely no facts either in the records of geology, or in the history of the past, or in the experience of the present, that can be referred to as proving evolution, or the development of one species from another by selection of any kind whatever."

"Those who accept Mr. Darwin's account of the descent of man must accept along with it not a little that is, if possible, even more incredible. For example, while a certain monkey race has, by a series of insensible gradations, occurring during a period of enormous length, developed into man, other monkey races, during a yet longer period, have remained monkeys, making no progress whatever! Mr. Darwin, I presume, would maintain that at least half a million of years have passed since man emerged into humanity from the last of his ape-like progenitors. How far remote, then, must be the time when the ape from which man has descended, branched away from the stem of the Old World monkeys! But during this period--so long that, to us, it is practically an eternity--Old World monkeys have remained Old World monkeys, with the solitary exception of that wonderful member of the ancient series of the Primates, with his plastic frame, of which Mr. Darwin catches "an obscure glance" through the dim vista of ages."

Source: Lyon, William Penman. Homo versus Darwin, a Judicial Examination of Statements Recently Published by Mr. Darwin Regarding the Descent of Man. London, Hamilton, Adams and Co., 1871. pp. 29, 138-139, 140, 145.

* * * * * *

4. Electricity

Opposition to the use of alternating current:

> "There is no plea which will justify the use of high-tension and alternating currents, either in a scientific or a commercial sense. They are employed solely to reduce investment in copper wire and real estate."

> "...My personal desire would be to prohibit entirely the use of alternating currents. They are unnecessary as they are dangerous.... I can therefore see no justification for the introduction of a system which has no element of permanency and every element of danger to life and property."

> "...I have always consistently opposed high-tension and alternating systems of electric lighting...not only on account of danger, but because of their general unreliability and unsuitability for any general system of distribution."

Source: Edison, Thomas A. The Dangers of Electric Lighting. North American Review, November, 1889. pp. 630, 632, 633.

* * * * * *

Thomas A. Edison is also reported to have said:

> "Just as certain as death, [George] Westinghouse will kill a customer within six months after he puts in a system of any size."

Source: Blow, Michael. Men of Science and Invention. New York, American Heritage Publishing Co., Inc., 1961. p. 95.

* * * * * *

Opposition to placing electric wires underground:

> "The public may rest absolutely assured that safety will not be secured by burying these wires. The condensation of moisture, the ingress of water, the dissolving influence of coal gas and air-oxidation upon the various insulating compounds will result only in the transfer of deaths to man-holes, houses, stores, and offices, through the agency of the telephone, the low-pressure systems, and the apparatus of the high-tension current itself."

Source: Edison, Thomas A., "The Dangers of Electric Lighting." North American Review, November 1889. p. 629.

* * * * * *

Development of the incandescent lamp:

Sir Arthur Preece, engineer-in-chief of the British Post Office, said in 1878:

> "...Subdivision of the electric light is an absolute ignus fatuus."

Source: Clarke, Arthur C. Profiles of the Future, New York, Harper and Row, 1962. p. 2.

* * * * * *

A committee of the British Parliament in 1878 reported Thomas Edison's ideas of developing an incandescent lamp to be

> "good enough for our transatlantic friends... but unworthy of the attention of practical or scientific men"

Source: Clarke, Arthur C. Profiles of the Future. New York, Harper and Row, 1962. p. 2.

* * * * * *

Utility of electric lighting:

For general purposes:

"...I do not think there is the slightest chance of its [electricity] competing, in a general way, with gas. There are defects about the electric light which, unless some essential change takes place, must entirely prevent its application to ordinary lighting purposes."

Source: Remarks of Mr. Keates, Minutes of Evidence Taken before the Select Committee on Lighting by Electricity in Report from the Select Committee on Lighting by Electricity. London, House of Commons, 1879. p. 146.

* * * * * *

For use on board ships:

"...Without going into the consideration of many minor objections to the general adoption of such a light on board ship, it may be sufficient to call attention to the following serious drawbacks, viz.: That whether fixed, revolving, or intermittent, a powerful light, such as is referred to, could not fail to interfere very considerably with the distinctive arrangements for lighting the coasts by means of lighthouses and light vessels. That such powerful lights would be almost certain to detract very much from the value of the smaller lights which the law compels all ships to show by night, and the risks of collision would be increased. That the glare of such powerful lights in crowded channels would be perplexing, and would probably cause such confusion that the risks of collision would be increased."

Source: Remarks of Mr. Farrer, Minutes of Evidence Taken before the Select Committee on Lighting by Electricity in Report from the Select Committee on Lighting by Electricity. London, House of Commons, 1879. pp. 156-157.

* * * * * *

5. Ford, Henry and the Ford Motor Company

Ford's experiments with gas engines:

> "...my gas-engine experiments were no more popular with the president of the company than my first mechanical leanings were with my father. It was not that my employer objected to experiments--only to experiments with gas engine. I can still hear him say: 'Electricity yes, that's the coming thing. But gas--no.'"

> "The Edison Company offered me the general superintendency of the company but only on condition that I would give up my gas engine and devote myself to something really useful."

Source: Ford, Henry. My Life and Work. New York, Doubleday, Page and Company, 1922. pp. 34-35.

* * * * * *

Ford Motor Company:

In 1903 Henry Ford asked that membership in the Association of Licensed Automobile Manufacturers be granted to the Ford Motor Company. Frederic L. Smith, President of the A.L.A.M. at that time, later recalled giving this reply:

> "I remember solemnly telling Henry Ford that his outfit was really nothing but an 'assemblage plant'--poison to the A.L.A.M.--and that when they had their own plant and became a factor in the industry they would be welcome..."

Source: Greenleaf, William. Monopoly on Wheels. Detroit, Wayne State University Press, 1961. p. 109.

* * * * * *

6. Galileo's discovery of Jupiter's moons by telescope

Aristotelian professors who were contemporaries of Galileo made the following pronouncement concerning this discovery:

> "Jupiter's moons are invisible to the naked eye, and therefore can have no influence on the earth, and therefore would be useless, and therefore do not exist."

Source: Williams-Ellis, Amabel. Men Who Found Out. New York, Coward-McCann, Inc., 1930. p. 43.

* * * * * *

7. Gas Lighting

Proposal to light English cities by gas (early 1800's):

The idea was ridiculed in the following popular rhyme:

> "We thankful are that sun and moon
> Were placed so very high
> That no tempestuous hand might reach
> To tear them from the sky.
> Were it not so, we soon should find
> That some reforming ass
> Would straight propose to snuff them out,
> And light the world with Gas."

Further ridicule came from William H. Wollaston, English chemist and natural philosopher, who said:

> "[They] might as well try to light London with a slice from the moon."

Source: Murdoch, Alexander. Light Without a Wick, a Century of Gas-Lighting, 1792-1892. Glasgow, Scotland, University Press, 1892. p. 45.

* * * * * *

8. Goddard, Robert

Criticism of Goddard's Rocket Research:

A New York Times editorial of 1921 said:

> "That Professor Goddard with his 'chair' in Clark College and the countenancing of the Smithsonian Institution does not know the relation of action to reaction, and of the need to have something better than a vacuum against which to react--to say that would be absurd. Of course he only seems to lack the knowledge ladled out daily in high schools...."

Source: Lehman, Milton. This High Man, the Life of Robert H. Goddard. New York, Farrar, Straus and Company, 1963. p. 111.

* * * * * *

Letter from Charles A. Lindbergh to Harry Guggenheim of the Guggenheim Foundation, May 1936:

> "I would much prefer to have Goddard interested in real scientific development than to have him primarily interested in more spectacular achievements which are of less real value."

Source: Lehman, Milton. This High Man, the Life of Robert H. Goddard. New York, Farrar, Straus and Company, 1963. p. 231.

* * * * * *

Rocket research as proposed to U. S. Army by Robert H. Goddard:

Letter (excerpts) from Brig. Gen. George H. Brett, Chief of Materiel, U. S. Army Air Corps, to Robert H. Goddard rejecting his rocket research proposals (1941):

"The proposals as outlined in your letter... have been carefully reviewed....While the Air Corps is deeply interested in the research work being carried out by your organization... it does not, at this time, feel justified in obligating further funds for basic jet propulsion research and experimentation...."

Source: Lehman, Milton. This High Man, the Life of Robert H. Goddard. New York, Farrar, Straus and Company, 1963. p. 310.

* * * * * *

9. Highways

"The actual building of roads devoted to motor cars is not for the near future, in spite of many rumors to that effect."

Source: Harpers Weekly, August 2, 1902. p. 1046.

* * * * * *

10. Inventions (general)

Henry L. Ellsworth, U. S. Commissioner of Patents, said in 1844:

"...The advancement of the arts from year to year taxes our credulity and seems to presage the arrival of that period when further improvement must end."

Source: Woods, Ralph L. Prophets Can be Right and Prophets Can be Wrong. American Legion Magazine, October 1966. p. 29.

* * * * * *

11. Medicine

William Harvey's discovery of the circulation of the blood

John Aubrey, a contemporary, wrote this account of the response William Harvey received upon publication in 1628 of his book "De Motu Cordis" in which he described his discovery of the blood's circulation:

> "...I heard Harvey say that after his book came out, he fell mightily in his practice. 'Twas believed by the vulgar that he was crack-brained, and all the physicians were against him. I knew several doctors in London that would not have given threepence for one of his medicines."

Source: Williams-Ellis, Amabel. Men Who Found Out. New York, Coward-McCann, Inc., 1930. p. 75.

* * * * * *

Opposition to inoculation:

Reaction from the English medical profession to Dr. Edward Jenner's experiments in developing a vaccine for small-pox (1796):

> "...It was argued that inoculation of the kind employed by Jenner would produce a cow-like face; that those who had been vaccinated (the word 'vaccinate' is derived from the Latin vacca, a cow) would grow hairy and cough like cows. ...one doctor stated: 'Smallpox is a visitation from God, but the cowpox is produced by presumptuous man; the former was what Heaven ordained, the latter is, perhaps, a daring violation of our holy religion.'"

Source: Butler, R. R. Scientific Discovery. London, English Universities Press, Ltd., 1947. p. 100.

* * * * * *

The following excerpts of opinion of many members of the medical profession and the clergy in the United States illustrate a similar reaction to inoculation experiments of Dr. Zabdiel Boylston (about 1721).

> "...for a man to infect a family in the morning with smallpox and to pray to God in the evening against the disease is blasphemy'; that the smallpox is 'a judgment of God on the sins of the people,' and that 'to avert it is but to provoke him more'; that inoculation is 'an encroachment on the prerogatives of Jehovah, whose right it is to wound and smite."

Source: White, Andrew D. A History of the Warfare of Science with Theology. New York, Dover Publications, Inc., 1960. p. 56.

* * * * * *

Opposition to use of anesthesia:

The famed surgeon Alfred Velpeau wrote in 1839:

> "The abolishment of pain in surgery is a chimera. It is absurd to go on seeking it today. 'Knife' and 'pain' are two words in surgery that must forever be associated in the consciousness of the patient. To this compulsory combination we shall have to adjust ourselves."

Source: Gumpert, Martin. Trail-Blazers of Science. New York, Funk and Wagnalls Company, 1936. p. 232.

* * * * * *

Limitation of surgery:

Sir John Erichsen (1873):

> "There cannot always be fresh fields of conquest by the knife; there must be portions of the human frame that will ever remain sacred from its intrusions, at least in the surgeon's hands. That we have already, if not quite, reached these final limits, there can be little question. The abdomen, the chest, and the brain will be forever shut from the intrusion of the wise and humane surgeon."

Source: Woods, Ralph L. "Prophets Can Be Right and Prophets Can Be Wrong." American Legion Magazine, October 1966. p. 29.

* * * * * *

12. Military Technology

Opposition to the change from bow to musket:

In 1591 Colonel Sir John Smyth advised the British Privy Council:

> "...The bow is a simple weapon, firearms are very complicated things which get out of order in many ways...a very heavy weapon and tires out soldiers on the march. Whereas also a bowman can let off six aimed shots a minute, a musketeer can discharge but one in two minutes."

Source: Wintringham, Thomas H. The Story of Weapons and Tactics. Boston, Houghton Mifflin Company, 1943. p. 101.

* * * * * *

Opposition within the British military to machine guns

Brigadier-General Baker-Carr, first commandant of the British Army machine-gun school in France wrote this account of the dislike of traditional battalion commanders for the machine-gun (1914):

> "'What shall I do with the machine-guns today, sir?' would be the question frequently asked by the officer in charge of a field day. 'Take the damn things to a flank and hide them!' was the usual reply."

Source: Wintringham, Thomas H. The Story of Weapons and Tactics. Boston, Houghton Mifflin Company, 1943. p. 160.

* * * * * *

Inability of airplanes to sink naval vessels:

U. S. Rear-Admiral Clark Woodward (1939):

> "...As far as sinking a ship with a bomb is concerned, you just can't do it."

Franklin D. Roosevelt, Assistant Secretary of the Navy (1922):

> "The day of the battleship has not passed, and it is highly unlikely that an airplane, or fleet of them, could ever successfully sink a fleet of Navy vessels under battle conditions."

Source: Woods, Ralph L. "Prophets Can Be Right and Prophets Can Be Wrong." American Legion Magazine, October 1966. p. 29.

* * * * * *

Proposal for developing a rocket-accelerated airplane bomb(1940):

The editor of Scientific American wrote Robert Goodard that this idea was

"...too far-fetched to be considered."

Source: Ley, Willy. Rockets, Missiles, and Space Travel. New York, Viking Press, Revised Edition, 1957. p. 172.

* * * * * *

Possibility of developing intercontinental missiles:

Dr. Vannevar Bush said in December of 1945:

"There has been a great deal said about a 3,000 miles high-angle rocket. In my opinion such a thing is impossible for many years. The people who have been writing these things that annoy me, have been talking about a 3,000 mile high-angle rocket shot from one continent to another, carrying an atomic bomb and so directed as to be a precise weapon which would land exactly on a certain target, such as a city.

I say, technically, I don't think anyone in the world knows how to do such a thing, and I feel confident that it will not be done for a very long period of time to come....I think we can leave that out of our thinking. I wish the American public would leave that out of their thinking."

Source: Clarke, Arthur C., Profiles of the Future, New York, Harper and Row, 1962. p. 9.

* * * * * *

Development of the atomic bomb:

Adm. William Leahy told President Truman in 1945:

> "That is the biggest fool thing we have ever done....The bomb will never go off, and I speak as an expert in explosives."

Source: Truman, Harry S. Memoirs, Vol. I: Year of Decisions. Garden City, Doubleday and Company, Inc., 1955. p. 11.

* * * * * *

13. Ohm's Law

When George Simon Ohm's theory of electricity was published in 1827 in his book "The Galvanic Chain, Mathematically Worked Out," it was called

> "a web of naked fancies."

One critic wrote:

> "...he who looks on the world with the eye of reverence must turn aside from this book as the result of an incurable delusion, whose sole effort is to detract from the dignity of nature."

The German Minister of Education said that

> "...a physicist who professed such heresies was unworthy to teach science."

Source: Hart, Ivor B. Makers of Science. London, Oxford University Press, 1923. p. 243.

* * * * * *

14. Radio

Lee de Forest:

In 1913 Lee de Forest, inventor of the audion tube, which device makes radio broadcasting possible, was brought to trial on charges of fraudulently using the U. S. mails to sell the public stock in the Radio Telephone Company, a worthless enterprise. In the court proceedings, the District Attorney charged that

> "De Forest has said in many newspapers and over his signature that it would be possible to transmit the human voice across the Atlantic before many years. Based on these absurd and deliberately misleading statements, the misguided public...has been persuaded to purchase stock in his company...."

De Forest was acquitted, but the judge advised him

> "to get a common garden variety of job and stick to it."

Source: Archer, L. History of Radio. New York, American Historical Society, 1938. p. 110.

* * * * * *

Limited utility of radio:

W. W. Dean, President of the Dean Telephone Company told Lee de Forest in 1907:

> "...You could put in this room [his office], de Forest, all the radiotelephone apparatus that the country will ever need!"

Source: De Forest, Lee. Father of Radio, the Autobiography of Lee de Forest. Chicago, Wilcox and Follett Co., 1950. p. 232.

* * * * * *

Friends of Lee de Forest asked:

> "Well, then of what possible use can your 'radiotelephone' be? It can't compare with the wire 'phone, you say, and it can't cover the distances that the wireless telegraph can cover. Then what the hell use is it anyway, Lee?"

Source: De Forest, Lee. Father of Radio, the Autobiography of Lee de Forest. Chicago, Wilcox and Follett Co., 1950. p. 227.

* * * * * *

15. Railroads and locomotives

Limitations of railroads and locomotive engines:

> "...the most ridiculous ideas have been formed, and circulated, of their powers; and though I am of the opinion, when made the subject of attention amongst engineers, they will advance in improvement like other machines, they must as yet be considered only in their infancy, and as not having reached beyond the trammels of prejudice. It is far from my wish to promulgate to the world that the ridiculous expectations, or rather professions, of the enthusiastic speculist will be realised, and that we shall see them travelling at the rate of 12, 16, 18, or 20 miles an hour: nothing could do more harm towards their adoption, or general improvement, than the promulgation of such nonsense."

Source: Wood, Nicholas. Practical Treatise on Rail-roads. London, Knight and Lacey, 1825. pp. 290-291.

* * * * * *

"...that any general system of conveying passengers would answer, to go at a velocity exceeding 10 miles an hour, or thereabouts, is extremely improbable."

Source: Tredgold, Thomas. Practical Treatise on Rail-Roads and Carriages. London, J. B. Nichols and Son, 2d edition, 1835. p. 119.

* * * * * *

Opposition to building a railway in England:

At the instance of the introduction of a bill in Parliament in 1825 to build a railway between Liverpool and Manchester, England, many hysterical statements were made. Mr. Samuel Smiles, in his biography of George Stephenson, describes them as follows:

"...pamphlets were written and newspapers were hired to revile the railway. It was declared that its formation would prevent cows grazing and hens laying. The poisoned air from the locomotives would kill birds as they flew over them, and render the preservation of pheasants and foxes no longer possible. Householders adjoining the projected line were told that their houses would be burnt up by the fire thrown from the engine-chimneys, while the air around would be polluted by clouds of smoke. There would no longer be any use for horses; and if railways extended, the species would become extinguished, and oats and hay unsalable commodities. Traveling by road would be rendered highly dangerous, and country inns would be ruined. Boilers would burst and blow passengers to atoms. But there was always this consolation to wind up with--that the weight of the locomotive

would completely prevent its moving, and that railways, even if made, could never be worked by steam-power."

Source: Smiles, Samuel. The Life of George Stephenson, Railway Engineer. Columbus, Ohio, Follett, Foster, and Company, 1859. p. 205.

* * * * * *

Railway travel (general):

"...We are not the advocates for visionary projects that interfere with useful establishments; we scout the idea of a general rail-road, as altogether impracticable; or, as one, at least, which will be rendered nugatory in lines, where the traffic is so small that the receipts would scarcely pay for the consumption of coals.

As to those persons who speculate on making rail-ways general throughout the kingdom, and superseding all the canals, all the waggons, mail and stage-coaches, post-chaises, and, in short, every other mode of conveyance by land and by water, we deem them and their visionary schemes unworthy of notice....The gross exaggerations of the powers of the locomotive steam-engine, or, to speak in plain English, the steam-carriage, may delude for a time, but must end in the mortification of those concerned.

...It is certainly some consolation to those who are to be whirled at the rate of eighteen or twenty miles an hour, by means of a high pressure engine, to be told that they are in no danger of being seasick while on shore; that they are not to be scalded to death nor drowned by the bursting of the boiler; and that they need not mind being shot by the scattered fragments, or dashed in pieces by the flying off, or the breaking of a wheel. But with all these assurances, we

should as soon expect the people of Woolwich to suffer themselves to be fired off upon one of Congreve's ricochet rockets, as trust themselves to the mercy of such a machine, going at such a rate;...we will back old father Thames against the Woolwich rail-way for any sum."

Source: Quarterly Review (Gt. Britain), March 1825. pp. 361-362.

* * * * * * *

"I see what will be the effect of it; that it will set the whole world a-gadding. Twenty miles an hour, sir!--Why, you will not be able to keep an apprentice boy at his work! Every Saturday evening he must have a trip to Ohio to spend a Sunday with his sweetheart. Grave plodding citizens will be flying about like comets. All local attachments will be at an end. It will encourage flightiness of intellect. Veracious people will turn into the most immeasurable liars. All conceptions will be exaggerated by the magnificent notions of distance.--Only a hundred miles off!--Tut, nonsense, I'll step across, madam, and bring your fan'.... And then, sir, there will be barrels of pork, cargoes of flour, chaldrons of coal, and even lead and whiskey, and such like sober things that have always been used to slow travelling--whisking away like a sky rocket. It will upset all the gravity of the nation....Upon the whole, sir, it is a pestilential, topsy-turvy, harum-scarum whirligig. Give me the old, solemn, straight forward, regular Dutch Canal--three miles an hour for expresses, and two rod jog-trot journeys--with a yoke of oxen for heavy loads. I go for beasts of burden. It is more formative and scriptural, and suits a moral and religious people better.--None of your hop skip and jump whimsies for me."

Source: From the Western Sun of Vincennes, Indiana, July 24, 1830, as quoted by Seymour Dunbar in A History of Travel in America, Indianapolis, Bobbs-Merrill Co., 1915, Vol. III. p. 938.

* * * * * * *

16. Steamships

Proposal to apply steam power to ships (early 1800's):

Sir Joseph Banks, English explorer-naturalist and President of the British Royal Society, said:

> "...a pretty plan; but there is just one point overlooked--that the steam engine requires a firm basis on which to work!"

Source: Butler, R. R. Scientific Discovery. London, English Universities Press, Ltd., 1947. p. 68.

* * * * * * *

Proposal to drive a steamboat by screw-propellor:

Sir William Symonds, Surveyor of the British Navy, commented in 1837:

> "...even if the propeller had the power of propelling a vessel, it would be found altogether useless in practice, because the power being applied in the stern it would be absolutely impossible to make the vessel steer."

Source: Church, William Conant. The Life of John Ericsson. New York, Charles Scribner's Sons, 1890. p. 90.

* * * * * * *

17. Telegraphy

Samuel F. B. Morse

Reaction of Senator Smith of Indiana after a demonstration by Samuel Morse of his telegraph before Congressional members in 1842:

"I watched his countenance closely, to see if he was not deranged....and I was assured by other Senators after we left the room that they had no confidence in it."

Source: Dunbar, Seymour. A History of Travel in America. Indianapolis, Bobbs-Merrill Co., 1915, Vol. III. p. 1048.

* * * * * * *

When Samuel F. B. Morse offered to sell his telegraph to the U. S. government for $100,000, the Postmaster General rejected the offer on the basis that

"...the operation of the telegraph between Washington and Baltimore had not satisfied him that under any rate of postage that could be adopted, its revenues could be made equal to its expenditures."

Source: Reid, James D. The Telegraph in America. New York, Derby Brothers, 1879. p. 108

* * * * * * *

Opposition to providing funds to build a telegraph line between Baltimore and New York City:

When the bill to appropriate money ($8,000) for maintenance of the telegraph line between Washington and Baltimore came up in Congress in 1845, amendment was offered in the Senate providing that money also be appropriated for construction of a telegraph line between Baltimore and New York City, the cost of which was estimated at $100,000. The following objection was raised:

"...What was this telegraph to do? Would it transmit letters and newspapers? Under what power in the constitution did Senators propose to erect this telegraph? He was not aware of any authority except under the clause for the establishment of post roads. And besides the telegraph might be made very mischievous, and secret information after communicated to the prejudice of merchants."

Source: Statement of Senator George McDuffie, Congressional Globe, 28th Congress, 2d session, 1844-45. p. 366.

* * * * * * *

Wireless telegraphy

At a meeting of stockholders of the Western Telegraph Company in 1907, Sir John Wolfe-Barry remarked:

"...As far as I can judge, I do not look upon any system of wireless telegraphy as a serious competitor with our cables. Some years ago I said the same thing and nothing has since occurred to alter my views."

Source: Dunlap's Radio and Television Almanac. New York, Harper, 1951. p. 44.

* * * * * * *