





U. S. GOVERNMENT PRINTING OFFICE
REF. 100-10000

INDEPENDENT OFFICES APPROPRIATION BILL, 1929

HEARING

BEFORE

**SUBCOMMITTEE OF HOUSE COMMITTEE
ON APPROPRIATIONS**

CONSISTING OF

MESSRS. WILLIAM R. WOOD (CHAIRMAN)
EDWARD H. WASON, JOHN W. SUMMERS, THOMAS H.
CULLEN, AND FRED M. VINSON

IN CHARGE OF

INDEPENDENT OFFICES APPROPRIATION BILL, 1929

J. E. G.

FEB 24 1941



Colonel GRANT. Yes; I am sure of it.

Mr. WOOD. What articles do you need to have printed mostly?

Colonel Grant. Mostly blank forms. The item might seem large, except that we have to have record cards in order to keep track of the operation of the various machines and boilers, and so on, daily charts showing a continuous record of what is going on, what their output is, and so on. Those charts cost quite a little. The annual report costs only about \$210. That is the only text printing that we have. The rest of it is for forms and charts.

TUESDAY, DECEMBER 20, 1927.

SMITHSONIAN INSTITUTION

STATEMENTS OF DR. C. G. ABBOT, ACTING SECRETARY; DR. ALEXANDER WETMORE, ASSISTANT SECRETARY; DR. W. de C. RAVENEL, ADMINISTRATIVE ASSISTANT; L. C. GUNNELL, ASSISTANT IN CHARGE OF INTERNATIONAL CATALOGUE, SCIENTIFIC LIBRARY; H. W. DORSEY, CHIEF CLERK; AND HON. R. WALTON MOORE AND HON. WALTER H. NEWTON, MEMBERS OF THE BOARD OF REGENTS

Mr. WOOD. Have you a general statement you desire to make before we take up the specific items in the bill?

Doctor ABBOT. There are at present two members of our Board of Regents, sir, and it occurs to me, as they may very likely have engagements in the House, it would be better for them to say what is in their minds first. Mr. Newton and Mr. Moore are here.

Mr. NEWTON. Mr. Chairman, I would be very glad to remain around here for a few minutes, until after Doctor Abbot has presented the matters generally. The interest here of Mr. Moore and myself is as members of the Board of Regents from the House. Mr. Johnson, also a Regent, is sick, or he would be here with us.

There are two items wherein the Budget has not granted the request, and we are here primarily on those two items in the interest of seeing that the facts are brought out before this committee, and it is our hope, after that matter has been gone into, our request will be granted. I would be very glad to wait until Doctor Abbot gets through.

Mr. WOOD. You folks do not ever seem to be satisfied with what the Budget does for you?

Mr. NEWTON. Well, I am afraid that is true, in part, but we would be derelict in our duties as Regents, sometimes, if we were satisfied, and, as a result of our own efforts and the efforts of this committee, in the past, I think we have been able to do much more than we would have had we followed the recommendations of the Director of the Budget.

Mr. WOOD. Well, just so somebody commences here. Don't let your modesty deter all of you.

Mr. MOORE. Mr. Chairman, Mr. Newton and I think perhaps it would be well for us to submit a memorandum which we have had prepared with reference, I think, to all of the items that will be under consideration.

Mr. Wood. I will read this:

SALARIES AND SUPPLIES

1. Certain salaries and supplies, heretofore carried by Smithsonian private income, \$25,000. (This item was allowed by the Budget and is in the regular estimates before the committee.)

The Smithsonian is privately endowed. Yet from the highest officials of the Smithsonian down to laborers, all now paid from the private income, no inconsiderable service is devoted to administration (and to actual labor) for the seven Government bureaus under Smithsonian management. It is not practicable, indeed it is inexpedient, for the Government to take over proportional parts of the salaries of the secretary, the editor, and others in a way to equitably share this charge. But it has been urged by the Regents and by the acting secretary, and accepted as a working arrangement by the Bureau of the Budget, that Congress should appropriate to the extent of \$25,000 to cover in full the compensations of certain clerks and laborers, and the costs of certain supplies, in lieu of the exact ascertainment of actual times occupied by all officials and the subdivision of costs all along the line, as between the Government and the private work of the Smithsonian.

INCREASED COMPENSATION

2. Increase of all compensations, by one step, of persons whose ratings deserve it, \$24,401.99. (This item was in the preliminary estimates, but was disallowed by the Budget.)

This involves the following additional appropriations above those recommended by the Budget.

International exchanges.....	\$353.33
Bureau of American Ethnology.....	1,580.00
International catalogue.....	200.00
Astrophysical observatory.....	1,140.00
Furniture and fixtures.....	60.00
Heating and lighting.....	700.00
Preservation of collections.....	19,436.66
Building repairs.....	120.00
National gallery of art.....	812.00
Total.....	24,401.99

The law provides that if money is available persons whose efficiency ratings warrant it shall be advanced by steps until the average compensation, by grade, of a bureau equals the average of the grade.

As shown at pages A96 and A110 of the Budget, the Smithsonian average salaries are far below the average of the Government service in the District of Columbia, and will still be so if the proposed increase for 1929 is made. The Smithsonian average is now 31st among 33 services listed on page A110.

This condition operates to lower the morale of our force, and leads to the loss of able experts, for they see themselves discriminated against.

This is the more unfortunate because our scientific work is of that nature that it is more difficult to replace trained service than it would be in less unusual fields.

PRINTING AND BINDING

3. Printing and binding, \$10,000. (Submitted in preliminary estimates, but not included by the Budget.)

This is additional to the sum recommended by the Budget. In the Bureau of American Ethnology are manuscript reports of work finished years ago which await publication. Also in the National Museum the printing appropriation is insufficient to publish without long delay, so that workers are discouraged thereby from producing, or are obliged to seek publication of Museum work in outside mediums.

ADMINISTRATIVE EXPENSES

For general administrative office, Smithsonian Institution, including compensation of necessary employees, traveling expenses, purchase of books and periodicals, supplies and equipment, and any other necessary expenses, \$25,000.

This \$25,000 item is a new item; are you complaining because that is not enough.

Doctor ABBOT. Now that it has been submitted by the Budget, if it is allowed by the Congress it will be perfectly satisfactory to us, sir; we are only submitting the argument for the approval of this item.

ADMINISTRATIVE EXPENSES PAID FROM INCOME OF ENDOWMENT FUND

Mr. WOOD. How has this administrative expense been paid heretofore?

Doctor ABBOT. The Smithsonian Institution has a private endowment, amounting at the present time to approximately \$1,400,000. This came, originally, from the bequest of James Smithson, about 100 years ago, and has been added to from time to time by savings from income and by bequests of individuals and interested parties; so that, from the original sum of approximately \$600,000, it has now risen to approximately \$1,400,000. The annual income from this private endowment is of the order of \$65,000 a year and about one-half of it, for a good many years, has been employed by the institution for services and administrative work which we feel very properly belongs to the seven Government bureaus which are under the administration of the Smithsonian Institution, including the National Museum, the National Zoological Park, and the others.

This item is for the relief of the private Smithsonian income from expense that we think should properly be borne by the Government as proposed by this item. You will see, sir, that in a way it is an injustice to Smithson and to the others who have raised this private endowment for general purposes, if so much of its income should be used for administrative purposes directly connected with the bureaus which have become public institutions under the National Government.

SMITHSONIAN ENDOWMENT FUNDS

Mr. WOOD. Are there any restrictions on these endowments, or any limitations; in other words, do they provide for the proceeds to be applied for certain specific purposes?

Doctor ABBOT. The original bequest of Smithson has a very wide scope—"for the increase and diffusion of knowledge among men." That is to say, all men, everywhere. The matter has always been regarded so, and the institution carries on explorations in other parts of the world; it publishes and freely distributes all over the world a great many publications, many of which contain voluminous results of investigation such as a private publisher could not possibly undertake. We have, for example, in the last year, published a great work on "World Weather Records," in which are collected the long-standing monthly mean records of temperature, pressure, and precipitation, from 387 stations, covering the whole world. These data have been collected by international cooperation, and published by the aid of a friend of the Institution under the Smithsonian stamp.

Mr. WOOD. Does it say anything about this new idea that you are going to be able to tell what the weather will be 50 years from to-day?

Doctor ABBOT. Mr. Chairman, perhaps we will come into that a little later under the Astrophysical Observatory; but, for the

moment, I will only say that matter is making some progress, and I feel it will be worth your inquiry, when we come to the item where it more naturally belongs, sir, if you please—the Astrophysical Observatory.

Mr. WOOD. All right. Now, you speak about the Smithsonian endowment: What are the other endowments besides the Smithsonian endowment, under which you are working?

Doctor ABBOT. For example, the late Thomas George Hodgkins, who died a number of years ago, left his estate of \$200,000 to be added to the endowment and, from time to time, there have been other smaller sums, of which I have a list here if you would like to have it appear in the record, which have been added to the original endowment.

Mr. WOOD. Yes; I do not think we have ever put in the record what these endowments are, other than Smithsonian's. That is referred to every once in a while.

Doctor ABBOT. Shall I put this in?

Mr. WOOD. Yes.

Doctor ABBOT. The following is a statement of the funds:

Smithsonian funds

Fund	United States Treasury	Consolidated fund	Walcott research fund	Total
Avery fund		\$40,456.46		\$54,456.46
Virginia Purdy Bacon fund	\$14,000.00	62,272.93		62,272.93
Lucy H. Baird fund		1,728.09		1,728.09
Chamberlain fund		35,000.00		35,000.00
Habel fund	500.00			500.00
Hamilton fund	2,500.00	500.00		3,000.00
Caroline Henry fund		1,223.33		1,223.33
Hodgkins fund:				
General	116,000.00	37,275.00		153,275.00
Specific	100,000.00			100,000.00
Bruce Hughes fund		14,158.90		14,158.90
Lucy T. and George W. Poore fund	26,670.00	21,296.42		47,966.42
Addison T. Reid fund	11,000.00	7,299.16		18,299.16
Rhees fund	590.00	357.34		947.34
Roebbling fund		150,000.00		150,000.00
George H. Sanford fund	1,100.00	675.72		1,775.72
Smithson fund	727,640.00	1,516.40		729,156.40
Charles D. and Mary Vaux Walcott research fund			\$11,520.00	11,520.00
Total	1,000,000.00	373,759.75	11,520.00	1,385,279.75

Freer Gallery of Art.—The invested funds of the Freer bequest:

Court and grounds fund ¹	\$365,441.13
Court and grounds, maintenance fund ¹	78,953.36
Curator fund ¹	316,830.25
Residuary legacy ¹	3,410,655.87
Total Freer funds	4,171,880.61

RESTRICTIONS ON USE OF ENDOWMENTS

Mr. WOOD (continuing). Is there any specific purpose to which the proceeds of any of these endowments are to be applied?

Doctor ABBOT. Yes: in many cases there are specific purposes.

Mr. DORSEY. In some cases, Mr. Chairman, the testators have left a certain bequest with the stipulation it should not be touched, but

¹ Income restricted to specific uses, not available for general purposes.

that the interest should be added to the principal until it equaled the principal, or until a certain sum was reached. That was the case of the bequest of Mr. Poore of Massachusetts, some years ago. He left us some real estate up in Lowell and other funds, and stipulated that they should not be touched until \$250,000 was reached, and then it can be used for the general purposes of the institution.

Mr. WOOD. That is, the principal can be used?

Mr. DORSEY. The interest only can be used. I do not think we have a case, sir, where the principal can be used. Often we are given small gifts for a specific purpose, like a small expedition or something like that; but in many cases funds are restricted to a specific purpose, or may not be used at the present time, on account of the condition that the income shall be added to the principal until a certain sum is reached.

HISTORY OF SMITHSON ENDOWMENT

Mr. WOOD. As a matter of fact, you have none of the principal of the Smithsonian endowment, have you?

Mr. DORSEY. Yes, sir; I think we have.

Doctor ABBOT. We have, Mr. Chairman. The Government of the United States invested the actual money which came from the Smithsonian estate in several different ways, some of which investments proved to be poor ones, and under a feeling of the Congress that the United States was a trustee in this matter and it was a very sacred trust, and especially by the urging of ex-President John Quincy Adams, who at that time was a Member of the House, Congress passed an act in 1846 in which it was provided that the equivalent of the original bequest of Smithsonian should be deposited in the United States Treasury, or should be regarded as deposited in the United States Treasury, and bear interest forever at 6 per cent, to be used for the purposes of the Smithsonian bequest. Later on, about 20 year later, in 1867, was it not?

Mr. DORSEY. Yes, sir.

Doctor ABBOT. It was made possible to deposit up to \$1,000,000 of any additional sums which might come into the hands of the Board of Regents, to bear interest at 6 per cent forever, in favor of the purposes of the Institution. That is the law now under which we are proceeding.

Mr. WOOD. Then there is not any sum of money that is invested by the Treasury, independent of these other investments, the sole and specific purpose of which is to make this return of \$60,000 a year for the Smithsonian, is there? In this letter you are submitting you are given what is the equivalent of 6 per cent on a million dollars. That is paid out of the General Treasury?

Doctor ABBOT. Mr. Chairman, the original bequest of Smithsonian amounted approximately to \$600,000. That sum was regarded as held in trust and regarded as deposited in the Treasury. The balance of approximately half a million dollars has actually been deposited by the Regents in specific sums as they have been received from this, that, and the other source; so that with the actual moneys deposited by the Institution in accordance with law—

Mr. WOOD. I understand that; but the point I am trying to make is that the Government does not actually have that money and make investments the proceeds of which are turned over to you?

Doctor ABBOT. No.

Mr. WOOD. They just give you the equivalent of what is 6 per cent on a million dollars?

Doctor ABBOT. Yes.

Mr. DORSEY. The Government has use of the money, though.

Mr. WOOD. Of course, it is just the same thing.

ADMINISTRATION EXPENSES TO BE PAID FROM FUNDS OTHER THAN INCOME
ON ENDOWMENT FUND

Mr. MOORE. This proposal you have before you right now means it carries the release of \$25,000 of this income from the endowment for the general purposes of the Institution—research and investigation.

Doctor ABBOT. That is true, Mr. Chairman.

Mr. MOORE. I will say to the subcommittee that Mr. Dwight Morrow, who is one of the ablest men I have ever encountered, after he came on the board was very much impressed with the fact that this should be done; that is, that \$25,000 should be freed so as to be able to use it in scientific research, etc., and I think he and Mr. Delano called on the Director of the Budget and discussed the matter with him and, as a result, the Budget approved this proposal.

Mr. WOOD. Is it proposed to make this \$25,000 a permanent arrangement? Is it only for this year, or is it intended this same sum of money, or more or less, should be appropriated from year to year, or that the same purposes for which this is asked would be urged on us from time to time?

Mr. MOORE. I think that would be answered in the affirmative.

EXPENDITURES FROM PROCEEDS OF SMITHSON FUND

Mr. WOOD. For what purposes have the funds you have derived from the Smithsonian endowment been expended, Doctor Abbot?

Doctor ABBOT. In the past, sir, beginning as long ago as 1850, they began to make collections and defray the expenses of expeditions, out of which grew up the great National Museum. Later on, about that same time, Secretary Henry, realizing the advantage of the free communication of ideas between this country and abroad, established a system of exchanges of the Smithsonian publications with a great many countries in foreign lands. This proved to be so valuable, not only to the Smithsonian but to the other institutions and learned societies of this country, that it was eagerly availed of by others and the National Government soon began to make use of it. So that between 1870 and 1880 there was no small amount of the Smithsonian's private income which was devoted to carrying, for the Government, publications abroad. Then, about 1880, the Government, realizing that it was using the income of the Smithsonian bequest for purposes which were of a public utility character, began to appropriate money for the international exchanges, and one of the items which we will come to later is for the international exchanges that grew up out of the use of the income. Then we have great publications, classical publications.

If you should happen to be, sir, in the west hall of the Smithsonian Institution, you will see there a column 23 feet high, made up

of a cross section of four books, in which are collected the publications of the Smithsonian Institution on all possible subjects which the mind of man has conceived from the beginning until now and these have been sent free to all parts of the world. It has been said, sir, that there is no encyclopedia or text book of knowledge which has been published in the last 50 years which does not owe the fundamental facts, in large measure, to these publications which have been made with the private income of the Smithsonian Institution.

Mr. WOOD. Is that column you have built up there, built out of extra copies?

Doctor ABBOT. We have quite a beautiful set of the complete publications of the institution.

Doctor WETMORE. The column is made with one copy of each book, sir; no more.

Mr. WOOD. Do you keep a separate and distinct record of the purposes for which the proceeds of the Smithsonian fund are expended?

Doctor ABBOT. Yes.

Mr. WOOD. So that you know all the time what is the condition of that account?

Doctor ABBOT. Yes, sir.

Mr. WOOD. Do you do that same thing with reference to all these other funds?

Doctor ABBOT. Yes, sir.

Mr. WOOD. For how long have you been doing that?

Doctor ABBOT. Ever since the beginning. In fact, sir, it was part of the fundamental act that the Smithsonian Institution Regents shall report to Congress every year all such accounts.

Mr. WOOD. Do you file in your report the different items of expenditure that have been made out of these funds for that year?

Doctor ABBOT. To a considerable extent, sir. Of course, if we should include every single item, like the purchase of a block of paper or the like, it would probably be too voluminous.

Mr. WOOD. It might be interesting for the public and Congress especially if they knew or had some idea; but, if that is reported, why it is all right.

Mr. DORSEY. You asked one question awhile ago about whether the Smithsonian money was actually deposited in the Treasury; that is, whether the Government actually holds the Smithsonian fund?

Mr. WOOD. Yes.

INVESTMENT OF SMITHSON FUND IN ARKANSAS STATE BONDS

Mr. DORSEY. That money, as you recall, was largely invested in Arkansas bonds and, for a long time, these were repudiated by the State and there was no settlement. Then, I think, in 1898, the State of Arkansas made a settlement with the Government covering State bonds, public lands within the State, etc., etc., and the Smithsonian money was taken into account in that settlement. So the Government actually has the use of the Smithsonian fund, as it was taken into that account and there has been a settlement made.

Mr. WOOD. Do you know, in that settlement made by Arkansas of the debt she once repudiated, whether or not the Smithsonian fund was entirely replenished up to the amount of their loan?

Mr. DORSEY. The General Government made a settlement with the State that was satisfactory to the Government.

Mr. WOOD. Was it a full settlement, or thereabouts?

Mr. DORSEY. I do not know, sir; but the bonds purchased with the Smithsonian money was one of the items covered by the settlement.

PUBLICATION OF "WORLD WEATHER RECORDS"

Doctor ABBOT. You asked a few moments ago with reference to that book which Mr. Newton now has in his hand.

Mr. WOOD. Yes.

Doctor ABBOT. It would be interesting, sir, if I read this letter from the Chief of the United States Weather Bureau:

DEAR DOCTOR ABBOT: The Weather Bureau notes with great interest the publication of the extremely valuable collection of meteorological data entitled "World Weather Records," which will henceforth be an indispensable reference book in meteorological libraries.

The Institution has been good enough to present copies of this work to the Weather Bureau library, as well as to myself and some of the other officials of the bureau, for which please accept our thanks. We shall require about 50 additional copies for use at Weather Bureau stations, and I am writing to inquire whether, in view of the large number desired, these could be purchased at a special rate from the Smithsonian Institution.

Faithfully yours,

C. V. MARVIN, *Chief of Bureau.*

I will also say, sir, that several workers in meteorology have shown so great an interest and attributed so great a value to this publication that, in several instances, they have reported that they have already worn the book out, and desire another one to replace it.

Mr. WOOD. You sell that book, do you?

Doctor ABBOT. Yes, sir; we sell that book, for about half of the cost to the Smithsonian Institution to print it, at \$3 a volume, so as to increase its usefulness among those to whom its full price would be prohibitive.

RECEIPTS FROM SALE OF PUBLICATION

Mr. WOOD. What becomes of the proceeds?

Doctor ABBOT. That goes back to the Smithsonian fund.

Mr. WOOD. Is that turned into the Treasury like the proceeds derived from all these other departments?

Doctor ABBOT. This was from private funds of the Institution; it was not published at Government expense, but from private funds of the Institution and the proceeds are returned to that fund.

Mr. WOOD. Is that out of the original endowment?

Doctor ABBOT. We have, in addition to about \$1,000,000 in the Treasury, nearly \$400,000 which we have invested in various safe securities, bonds, and the like, and it is to this general fund of about \$1,400,000, that the proceeds of such sales are returned.

Mr. WOOD. Do you keep an account and make a report of the items of expense that are paid for out of these endowments, and then do you keep a separate account of the things and expenses that are paid for out of the Government's appropriation?

Doctor ABBOT. That is the case, sir.

Doctor WETMORE. May I distinguish between a publication of this type and one published from the governmental appropriation for printing and binding?

Mr. WOOD. Yes.

Doctor WETMORE. The book we now have under discussion is in what is known as the Smithsonian miscellaneous collections. The papers that appear in that series are printed wholly from income of the Smithsonian endowment. The money appropriated by Congress, for printing and binding for the bureau under the Smithsonian, has nothing whatever to do with it.

Mr. WOOD. The item, then, for printing and binding in this estimate does not present a true picture of the expenditures for printing and binding by the Institution, does it?

Doctor WETMORE. It does not cover the amount expended by the Smithsonian from its invested funds for printing and binding.

Mr. WOOD. How much is expended for printing and binding out of that fund, and in addition to what the Government appropriates for printing and binding?

Mr. DORSEY. Recently about \$14,000 a year, sir.

Doctor WETMORE. The custom is to allot for that purpose as much as possible (with due regard to other interests) from the income from the invested funds.

NECESSITY OF MAKING APPROPRIATION FOR ADMINISTRATIVE EXPENSES

Now, if this item of \$25,000 here is allowed by Congress, that will mean an increase of the publication of manuscripts that come to the Smithsonian as such, and not to the governmental bureaus under it.

Mr. WOOD. This whole \$25,000 would not be spent for printing and binding, would it?

Doctor WETMORE. No, sir. The primary intention of the income from the Smithsonian endowment was to encourage original investigators in science to make contributions to new fields. As the Smithsonian has grown, the bureaus that it has instituted, which have been taken over by the Government, have shown a very laudable growth also which has occasioned an increasingly larger amount annually for administrative overhead. That has now grown to a point where it is absorbing a large part of the income from the private funds of the organization. It is felt, as set forth in the statement that Mr. Moore presented, that is now the case to the detriment of the original purpose of the fund.

Mr. WOOD. Why?

Doctor WETMORE. Because it does not allow funds for original investigations and scientific research. On an examination of the expenditures that have been annually under the Smithsonian fund, it is considered that \$25,000 represents an administrative charge that the institution is now carrying, due to the governmental bureaus under it which should be freed and to allow it to go back to its original purpose.

PAY OF CERTAIN EMPLOYEES NOW PAID FROM SMITHSON FUND

Mr. WOOD. You said something, doctor, about certain bureaus over which you exercise certain supervision or control: What are they?

Doctor ABBOT. The National Museum, National Zoological Park, Bureau of American Ethnology, Astrophysical Observatory, Bureau of International Exchanges, Bureau of International Catalogue of Scientific Literature, and the National Gallery of Art.

Mr. WOOD. Are those all independent bureaus; that is to say, they are not a part or parcel of any other activity?

Doctor ABBOT. No, sir. This is the independent offices bill, sir, and these are, by direction of the Congress, under the administration of the Smithsonian Institution.

Mr. WOOD. Are they run in any way in connection with each other; that is to say, does the same clerical force do part of the work of this and part of the work of that bureau?

Doctor ABBOT. To a great extent. The Secretary of the Smithsonian is a general administrative officer over the whole group; the chief clerk, who is here, sir, has a great deal to do with administration over the whole group; the editor of the Smithsonian Institution has quite a good deal to do with the editing of the Government publications; the property clerk has considerable to do with things which relate to the other bureaus. Then, again, the clerk who sends out the publications has to do with some—the Bureau of Ethnology and others. And so it is all along the line, that from the force of the Smithsonian proper a great deal of time and attention is given to matters which properly relate to these seven different bureaus which I have enumerated.

Mr. WOOD. How do you pay these different persons who are devoting their work between these different institutions; how do you divide the funds with reference to the payment of the salaries of those persons? Do you keep books on that or do you pay them all out of one fund?

Doctor ABBOT. Well, sir, the payment of the force which is enumerated under this item of \$25,000 is at present all coming from the Smithsonian private fund, and in addition to that the payment of the salary of the secretary, payment of the salary of the editor, and several other officials comes from the private fund.

The payment of the employees connected with the National Museum, the Bureau of American Ethnology, Zoological Park, and the like comes from the funds which are appropriated yearly by Congress. And the items are kept entirely distinct. What is proposed now, sir, is that Congress should take over the payment of a certain lot of people and for certain supplies now carried on the Smithsonian private income, amounting in all to \$25,000. This, we feel, is a fair estimate of the value of the Smithsonian administration and care for the Government bureaus I have enumerated and which is now being paid from the private funds. This sum will go back into the use of the Smithsonian Institution for its particular researches and development of new projects, and for its explorations and important publications, such as that which I have brought to you.

Mr. WOOD. Is that upon the theory this work should be part of the Government's work and paid out of the general fund, rather than charged against these several departments which are endowed?

Doctor ABBOT. It is on the theory, sir, that such a bureau as the National Museum, or Zoological Park, is a public necessity, which, if the Smithsonian did not exist, the Government would be at pains to carry on, perhaps under some of the general departments of the Government. If the Smithsonian should be abolished, undoubtedly that work could go on. Now the Smithsonian itself is a private endowment which is charged by Congress with the administration of these various things at the present time. We feel, sir, that it is giving of its strength, gained from its income from the private fund, very largely to this work of carrying for the Government what, if the Smithsonian did not exist, would certainly be directly appropriated for by the Congress.

Mr. WOOD. These other bureaus you have mentioned: Do you think they occupy the same relation that the Zoological Park does with reference to the duty of a private institution or the Government to keep up and as to what it would keep up but for the Smithsonian?

Doctor ABBOT. I think so; yes, sir.

Mr. WOOD. All right. Now you are proposing to employ 16 persons out of this appropriation of \$25,000. The aggregate of salaries will be \$20,400. Will these be extra employees, or old employees who are now paid out of this fund?

Doctor ABBOT. At the present time, all of these employees are being paid out of the private funds.

Mr. WOOD. It does not mean an increase of 16 persons on your pay roll?

Doctor ABBOT. Not at all. It only means the transfer of those 16 persons' compensation from the private funds of our institution to the congressional appropriation.

Mr. WOOD. Are these people now receiving the same salaries that they would receive if this appropriation is granted?

Doctor ABBOT. Yes, sir; I believe so.

Mr. DORSEY. Unless the Personnel Classification Board should reallocate them to higher positions. These are actual salaries being paid now, sir, from the Smithsonian funds.

Mr. WOOD. There won't be very much left of this \$25,000 after these persons' salaries are paid.

INTERNATIONAL EXCHANGES

INCREASE IN OCEAN FREIGHT RATES

Mr. WOOD. Now the item for international exchanges:

International exchanges: For the system of international exchanges between the United States and foreign countries, under the direction of the Smithsonian Institution, including necessary employees, and purchase of necessary books and periodicals, and traveling expenses, \$47,855, of which amount not to exceed \$25,000 may be expended for personal services in the District of Columbia.

The appropriation asked there is \$47,855. Is any portion of the expense of this item of \$25,000 to be used for the purpose of covering expenses of this item?

Doctor ABBOT. No; not at all, sir.

Mr. WOOD. Now tell us about this international exchange business.

Doctor ABBOT. The item we are asking for this year is \$47,855, which is a little over a thousand dollars more than the last appropriation. The difference, sir, is on account of the increased cost of freight rates and the larger quantity of matter carried. We have here a tabulation relating to the freight rates, from which it appears that to several of the principal countries there have been, during the year, quite considerable increases—to France, 12½ per cent; to Italy, 16⅔ per cent.

Mr. WOOD. Are these increases?

Doctor ABBOT. Increase of freight rates over last year.

Mr. DORSEY. Ocean freight rates.

Doctor ABBOT. Ocean rates. To Germany, 33½ per cent; to Argentina, 10 per cent—making a change for the year of about \$400 to us. Then, there is more business being done and a considerably larger total weight of material carried, so that we require \$1,000 more to carry on the business. During the past year, owing to these increases, there was a deficit of about \$700, which was met by the Smithsonian private funds.

Mr. SUMMERS. I understand the freight rate to Germany is 30 per cent higher than it was the year before?

Doctor ABBOT. Yes, sir.

Mr. DORSEY. Thirty-three per cent.

Doctor ABBOT. The rate per cubic foot in 1926 was 37½ cents; in 1927, 50 cents—making an increase of 33⅓ per cent.

Mr. WOOD. How do you ship this stuff, by mail?

Doctor ABBOT. No, sir; in general by boxing. You see, sir, the material is sent from the Government and from the various learned societies and the like in the United States to the Smithsonian Institution. There will be, for instance, a whole box from a certain institution, which is to be distributed to all parts of the world. It is unpacked by the institution and repacked in different boxes, part going to Germany, part to England, part to France, and the like. When a proper amount of material has come in for shipment it is sent to New York, where the coordinator of the Army takes charge of the through shipment of it on the appropriate vessel, and it goes then to our correspondent abroad, where it is again unpacked and consigned to the particular addressees to which the parcels are to go. In the foreign countries they distribute it at their own expense to the actual consignees. That is the kind of work which the International Exchange is doing. It carries for the National Government the Congressional Record by treaty to a large number of the parliamentary institutions in other countries; it carries the Patent Office reports; and, in fact, all the Government publications which are authorized by law to be sent to the different countries. The agent of Congress in this matter of selection of recipients is the Congressional Library. We are instructed by the Congressional Library to include as correspondents the governments of such and such and such countries, making all together 103 sets at the present time.

DEMAND FOR PUBLICATIONS BY PEOPLE ABROAD

Mr. WOOD. Do you reckon they pay any more attention to these over there than we do here?

Doctor ABBOT. Yes, sir.

Mr. DORSEY. Yes, sir; they do. We have letters here from people abroad; if there is any delay, they write and complain of it.

Mr. MOORE. They actually read the Congressional Record?

Mr. DORSEY. Mr. Moore, we sent a big consignment of the Congressional Record, at the request of a Member of Congress, to the Jewish station in Palestine, last year, sir. Members of Congress use the exchange service to send the Congressional Record and other documents.

Mr. WOOD. You do not know what they use them for over there?

Mr. DORSEY. I do not; no, sir.

Mr. WOOD. Is this shipment made across the ocean by the War Department?

Doctor ABBOT. That is the forwarding agent only. You see, we send by freight to New York; then, there has to be some agent there to transship to the proper steamship lines; and the agent we have been using for several years is the Coordinator of the Second Area.

Mr. DORSEY. They are very efficient and handle the business very well, too.

SHIPMENT OF INTERNATIONAL EXCHANGES BY UNITED STATES SHIPS

Mr. WOOD. Do you have anything to do with designating the vessel to ship on?

Mr. DORSEY. No; we send them to him and he acts the same as any steamship broker would do.

Mr. WOOD. Do you know what ships they us?

Doctor ABBOT. Oh, yes; we have a report in every instance.

Mr. WOOD. Do they ship on a United States vessel?

Mr. DORSEY. As far as they can, sir.

Mr. WOOD. About half of the services here seem to use other boats to travel on, rather than ours.

Mr. DORSEY. They do that as far as possible—use the United States lines.

Mr. WASON. Do any large percentage of our shipments go on the United States lines?

Mr. DORSEY. I could not tell you that.

Mr. WASON. Put it in the record.

Mr. DORSEY. Yes. Sometimes if waiting for a ship of the United States lines to a certain country is going to make a big delay, and they then ship on some other lines.

NOTE.—Statement concerning the forwarding of consignments of international exchanges to foreign countries during a 12-month period.

	Consignments	Boxes	Weight
United States lines.....	156	1,560	261,708
Other lines.....	300	1,572	270,816

Shipments are not always made by vessels of the United States lines (1) when to hold a shipment for a steamer of those lines would unduly delay the dispatch of the consignment, and (2) because the United States lines do not have vessels sailing for all ports to which consignments are forwarded.

ADVISABILITY OF CONSOLIDATING PAY OF PERSONNEL

Mr. WOOD. Have you ever considered, Doctor, the advisability of having all of your personnel in all of these institutions, where you have separate and individual accounts for personal services, collected together in one item of administration?

Doctor ABBOT. You mean, sir, the National Museum, Zoological Park, and all the different ones should be put in one item?

Mr. WOOD. Yes. You seem to have a coordinated activity down there and it does not seem to me there is much logic in keeping them separate, if they are all being paid out of the same common fund.

Doctor WETMORE. This \$25,000 is the amount being carried now by the Smithsonian. These other funds are administered by separate heads under the Smithsonian, just as the various bureaus under the Department of Agriculture, for example, have a separate personnel fund that is administered by the chief of the bureau. We have seven bureaus in our administration and each bureau has its own personnel. Then there is the Smithsonian above all of them, which directs the general activities of the bureau heads.

Mr. WOOD. You only have one paymaster down there, have you?

Doctor WETMORE. One paymaster is all.

Mr. WOOD. Then, as I understand it, you make no distinction out of which fund you pay for your personnel, do you?

Doctor WETMORE. Yes; we do. Each fund has a separate pay roll. It so happens that the total amount is not so large but that it can be handled by one central office; but each fund has a separate pay roll, and accounting is made meticulously for the different bureaus, under the funds appropriated for that purpose. In other words, the pay roll for the National Museum is a thing absolutely distinct from that for the international exchanges or the national Zoological Park.

Mr. WOOD. You could not very well combine them, then?

Doctor WETMORE. It would be rather difficult to combine all of them. It would make a clumsy administrative unit.

Mr. WOOD. If that thing could be done, there are a whole lot of the limitations put in each of the different items which would be disposed of and one limitation made to apply to all of them. I do not know; perhaps it is not practicable.

Mr. DORSEY. All those pay rolls for these different bureaus, Mr. Chairman, would have to be certified by different officers.

Mr. WOOD. They are now?

Mr. DORSEY. They are now, and if you had them all on one pay roll, it would make more trouble than it would save, I think, sir.

LETTER IN RE VALUE OF INTERNATIONAL EXCHANGES

Doctor ABBOT. In connection with the international exchanges, I would like to quote from a letter received recently from Mr. George S. Godard, Connecticut State librarian. He says:

Every time I make a call at your department I am the more impressed with the most important service you and those associated with you in the International Exchange Service are rendering to the several States, institutions, and others scattered throughout the civilized earth.

As a representative of the State of Connecticut in charge of the State, National, and International Exchanges of Connecticut, I wish to again express my thanks for the services you have rendered the good State of Connecticut both in forwarding to others and sending to us.

INCREASE IN PAY OF EMPLOYEES

There is only one further thing I would like to say in connection with the exchanges: If the Congress should approve of the recommendation which Mr. Moore has had printed in the record, there would be an additional amount for the International Exchanges of \$353.33, covering the increase of compensation of one step up of persons whose records are deserving.

Mr. WOOD. The greater portion of this fund, practically half of it, is for personal services in the District of Columbia.

Doctor ABBOT. About half, sir; a little less than half is for services and the remainder for the purchase of boxes, transportation, and the like.

Mr. WOOD. The material you exchange does not cost you anything?

Doctor ABBOT. No, sir; the material costs nothing.

Mr. DORSEY. If this one step up is allowed, it is \$353. It would raise the total appropriation to \$48,208 and increase the salary limitation to \$25,353.

Mr. WOOD. The clerk suggests it might be well if we would have one limitation for all of these items, so that in the event you are a little short on one you could draw a little on the other.

Mr. DORSEY. We could do that.

Doctor WETMORE. That would be very advantageous.

Mr. WOOD. Some of the other departments do that.

Mr. DORSEY. That would be all right. If you simply sum up all the limitations and give it to us in a lump sum, instead of a separate limitation on each fund, that would be very much better.

Doctor WETMORE. We have no field force; our entire staff is here in Washington, so that could be handled very easily.

SALARIES OF SMITHSONIAN EMPLOYEES BELOW AVERAGE OF GRADE

Doctor ABBOT. I would like to say on this subject of a rise of one step in the salaries of deserving employees, that if you will turn to the proper page in the Budget you will find that of the 33 services listed on page A110 the Smithsonian is third from last; that is to say, we are the thirty-first in the average compensation, notwithstanding our work is of a very technical and unusually scientific character, as a rule.

Even after such an increase of one step, if it should be made, we would still be among the last in the whole range. We find that is so not only in regard to the average of all compensations, but you will find, sir, in the several grades, that we are below the average right straight through. You can easily see that such a state of affairs is discouraging to technical men, especially to the best ones; so that we are losing, from time to time, some whom we can ill afford to lose.

on account of the fact the compensations are so far below the average of the Government service.

Mr. WOOD. I see the public buildings and parks is below you, and what others?

Doctor ABBOT. I think there is only one other besides that; I can not now recall which one it is, sir.

Mr. DORSEY. Public buildings and parks I think is below us because nearly all of their employees are laborers and people of that grade. The District of Columbia, I think, is below us, sir, and they have a great many laborers there, too.

Mr. WOOD. Yes; they are \$1,539 to your \$1,563. Down at the Budget, they do not seem to consider it takes any great amount of ability to run your institution; do they?

Doctor ABBOT. No, sir; that seems to appear, but I imagine if you and the other gentlemen here should come down, and try to carry on some investigations which go on under the Astrophysical Observatory, or under the National Museum, you would find it would take some time to get trained people into it so that they would get international recognition for their publications.

Mr. WOOD. The fact is the great majority of your employees are laborers, are they not?

Doctor ABBOT. Oh, no, sir; I would like Mr. Wetmore to speak to that for a moment; because he employs the great majority of them.

Doctor WETMORE. We have guards and laborers on our force, that is true; but, at the same time, we have considerable scientific staff. We have in the National Museum alone 4 head curators, 16 curators, and 17 assistant curators. In all, there is a scientific staff there of approximately 80 persons. This group is not receiving pay commensurate with what those in similar work, in other organizations, are getting.

Mr. WOOD. What is the average pay of your curators?

Doctor WETMORE. The curators, at the present time, are getting \$4,000 a year; the assistant curators, from \$2,500 to \$3,100. Just within the last six weeks, one of the associate curators, whom we are paying \$3,100, has received an offer of \$4,600 from another organization. I have offered to attempt to raise his salary to \$4,000, so as to put him on a par with the other curators, but I can not go above that in justice to the other men.

Mr. WOOD. You could not do it anyhow, under the law, could you; you could not elevate this fellow above the rest of them?

Doctor WETMORE. No; not with the funds we have available. This man is one of the six best botanists in the country. He is the gentleman who has been preparing the reports on the flora of New Mexico and various other parts of our country and is doing very excellent work.

Mr. WOOD. You say you have 80 of those curators?

Doctor WETMORE. I have 16 curators. The scientific staff includes 80.

Mr. WOOD. What is the next highest to your curators; what do you call them?

Doctor WETMORE. Assistant curators.

Mr. WOOD. And next to them?

Doctor WETMORE. The aids—scientific aids. The assistant curators, by the way, do not all receive \$3,100; there is one group that gets \$2,500 and another \$3,100. Below those come the aids, who receive from \$1,920 to \$2,500.

Mr. WOOD. Are these employees under civil service?

Doctor WETMORE. All of them; yes, sir.

Mr. WOOD. All have to pass civil-service examinations?

Doctor WETMORE. Yes, sir.

Mr. WOOD. In order to obtain their positions?

Doctor WETMORE. Yes, sir.

Mr. WOOD. The fact is, the laborers have to do that too, do they not?

Doctor WETMORE. Yes.

Mr. WOOD. Do you every try to strike an average or try to ascertain, with reference to where you are on the classification list, by combining all of your employees and striking an average of their salary and taking a like number of employees from any of the other departments and striking their average, to see where you are?

Doctor WETMORE. That is all tabulated in the sheets immediately preceding the table you have before you now, in the Budget volume.

Doctor ABBOT. Pages A96 to A110. In the Budget before you, you have the different grades. We examined that the other day, sir, and I believe that in only the case of one grade were we on a par with the average of the Government service in the District of Columbia.

Mr. WASON. Are you much below the average?

Doctor ABBOT. Yes, sir. On the general average, it is about 300.

Doctor WETMORE. I think the situation is very well reflected in the annual turnover; that is, the separations from the service. For the past fiscal year that amounts to 25 per cent.

Mr. WOOD. Your turnover did?

Doctor WETMORE. Yes.

Mr. WOOD. Where does that occur mostly?

Doctor WETMORE. In the lower groups. We are very thankful and very glad to say there is only a small turnover in the higher groups as yet, but the men are getting restive and waiting to see what will happen under the reclassification. They are becoming dissatisfied, and I begin to fear for the result. As I have said, one of our men will go, shortly, to another institution at a considerable higher salary unless I can do something for him, and I have three or four others who have been talking to me about similar changes—men who are important to our work.

Mr. WOOD. I see the general average of all employees is \$1,899.70; your general average is \$1,563. So it would appear your general average is about \$334 low.

Doctor WETMORE. In simple justice to our employees, I think we should look forward to the time when the various grades would receive the average assigned under the reclassification act.

Mr. WOOD. Here is the situation that is not only common to your department but to all departments: If the bottom should happen to fall out of these high prices (I do not know whether it ever will, or not), when we get back to normalcy, where we can live on an ordinary wage, why all the people of this Government would be

receiving salaries beyond—suppose the living conditions now were as they were before the war; they would be getting more than they ought to receive in proportion to what they were receiving then, but I do not suspect there is any chance that the Government would ever have the hardihood to try to reduce those salaries.

Doctor WETMORE. Mr. Chairman, is it not true at the present time that our lower grades are receiving what would be the ordinary labor wage at a much lower level of living than we have at the present time and, at the same time, men who are doing mental work, who are carrying on investigational work from which we may hope for some profit to the Government, are receiving less than they should expect for the amount of time and effort they have spent on their training?

Mr. WOOD. I expect that is true. The plasterer to-day is receiving away beyond what a college graduate gets, or a man who has spent a quarter of a century in acquiring knowledge for some scientific purpose.

Doctor WETMORE. Yes. Most of these men engaged on scientific work have little conception of luxury in living. What they are after is a comfortable living and to be unworried by worldly matters, so that they may devote their entire attention to their research work. There was a gentleman in my office yesterday who comes from another institution, a professor in college, who told me he was just back from Sumatra, where he had been for a year on half pay, and that he had mortgaged his salary for the coming year in order to pay his expenses to go there and study the plants.

Mr. WOOD. Well, he is a real scientific enthusiast.

Doctor WETMORE. He is.

FREIGHT TRANSPORTATION

Mr. WOOD. Your principal item here next after salaries amounts to \$17,300 for transportation—freight?

Mr. DORSEY. That is ocean freight, largely, sir.

Mr. WOOD. Is that the transportation of these exchanges?

Mr. DORSEY. Yes, sir.

Mr. WOOD. All of it?

Mr. DORSEY. Yes, sir; nothing else; rail and ocean freight.

MAIL TRANSPORTATION

Mr. WOOD. Then there is \$3,000 additional for mail transportation.

Mr. DORSEY. That is for the Congressional Record, sir. The Congressional Record is sent out by mail for the Library of Congress to government recipients abroad and then, to some of the small countries, where we do not get an accumulation sufficient to warrant their sending by freight, ordinary publications are sent by mail so as not unduly to delay them.

Mr. WASON. I suppose it is advisable that they have them as soon as possible.

TRANSPORTING AND CONVEYING EQUIPMENT

Mr. WOOD. Transporting and conveying equipment is \$2,725.

Mr. DORSEY. It is largely boxes, sir, in which these things are shipped. We buy new boxes and when the boxes are returned we make them over. We save about \$500 on that item by making over boxes in the institution. We have a carpenter there and employ him to make over these boxes, in order to use them over and over again; sometimes a box will have a good top or another good sides and by combining the good parts a box that costs \$1.25 new we can make over for 30 or 35 cents.

AMERICAN ETHNOLOGY

Mr. WOOD. The next item is American ethnology:

For continuing ethnological researches among the American Indians and the natives of Hawaii, the excavation and preservation of archaeological remains under the direction of the Smithsonian Institution, including necessary employees, the preparation of manuscripts, drawings, and illustrations, the purchase of books and periodicals, and traveling expenses, \$58,720, of which amount not to exceed \$48,000 may be expended for personal services in the District of Columbia.

What has become of the old Indian hunter?

Doctor ABBOTT. I am sorry to say that Doctor Fewkes, to whom the committee has listened with great interest for many years, is unable to be present to-day. I am sorry that is so, because I am sure the committee will miss him as much as we do. I think perhaps Mr. Dorsey had better speak to that item; he is pretty well familiar with the administration of the bureau.

STUDY OF MIGRATION OF AMERICAN INDIAN

Mr. DORSEY. The appropriation asked is the same as the current year. What is proposed to do is to carry on in addition to the regular research work of the bureau special exploration in Alaska. During the past two years Doctor Fewkes has been devoting what money he could to archaeological work in Alaska. Doctor Hrdlicka, of the National Museum, was sent up there the summer of 1926, at the expense of the bureau, to make a reconnaissance, tracing the migration of the American Indian from Asia to this country across Bering Strait. Last summer, Doctor Fewkes assigned as much money as he could devote to it for a follow-up expedition, of Mr. Collins, from the Museum, and Mr. Stewart, who went up to Nunivak Island, off the coast of Alaska, where the Esquimos are the least changed by intercourse with the white people. They spent the summer there and made collections and studies. The whole question of the settlement of Alaska is one that Doctor Fewkes desired to follow up, and a part of this money will be devoted to that purpose this year.

Then Doctor Fewkes himself, last spring, went down to Greenville, S. C., and made a reconnaissance down there. He wants to take up that work in the South. There is a region there east of the Blue Ridge that he says is a very promising field for archaeological work, and he has been devoting a little money to that from time to time.

Mr. WOOD. Is there any supposition that the fellows who came across Bering Strait may have gotten down to South Carolina?

Mr. DORSEY. Ultimately they got down to South Carolina.

Mr. WOOD. That is on the theory the Indians came from that direction?

Mr. DORSEY. Yes.

Mr. WOOD. Is there not another theory they may have come from below?

Doctor ABBOTT. An interesting thing that comes to my knowledge from reading on that subject during the past year is that there are as many as 55 to 57 distinct stocks of Indians speaking languages which are as distinct from each other as English is from Chinese, all included as American Indians. Of those different, absolutely separate, language stocks, there are some 500 subdivisions speaking languages as different, we will say, as English is from French or Italian. So that if these people all came originally, as their color and general appearance would suggest, from a common stock somewhere, as over in Asia, they must have required enormous time to become so widely scattered in both locality and language over America. Doctor Hrdlicka, who is a great anthropologist, has made studies in Asia some years ago where he found many persons who could not be distinguished if they should be similarly clothed and set down among our Indians. He feels sure that the Indians originally came from Asia. Yet, if they did all descend from a common stock, that stock must have begun to branch thousands and thousands of years ago; possibly we may say almost to the glacial period. The wide diffusion of those people around the two Americas is indeed indicative of the fact that they came here so long ago that almost anything could have happened in the intervening time.

Mr. SUMMERS. In what part of Asia did he find these Indians?

Mr. DORSEY. Back in Tibet, around in that section of the continent which lies behind the Chinese.

Mr. SUMMERS. The races are there now, or their remains?

Mr. DORSEY. Living there.

Doctor ABBOTT. Relics of ancient races, people actually residing there, representing races that are different from the ordinary Chinese, Mongolian, or the like, but of a character so near like the North American Indians that, as he says, should they be similarly clothed and set down here amongst them you could not tell one from the other.

Doctor WETMORE. In regard to the coming of man across Bering Strait, man has crossed that body of water within a comparatively small number of years. There is a record of a body of Chukchi from the northeastern coast of Siberia who came across about 80 years ago and started to exterminate the Esquimos. They came across the Behring Sea and they had several very heavy battles, but the Esquimos finally gathered a considerable band of men and defeated and destroyed the Chukchi along the Yukon River in northwestern Alaska. Men who have visited that old battle field tell me the remains of the bodies and skeletons of men are still to be seen there.

Mr. WOOD. You were speaking of the diversity of language as negating the assumption that all those settlers came from a general

direction. I do not think that is conclusive, for this reason: In the Philippines, there are 40 separate and distinct languages and more than 80 dialects spoken among those people over there; yet they all look alike as two peas. The Moros are different; but aside from that, they all look alike and are all Malay. How would you account for the diversity of tongue?

Doctor ABBOTT. Only on the assumption that very long time has elapsed since the ancestors of those people were of common stock. I should think, sir, it must have been thousands and thousands of years, mounting in the tens or even possibly hundreds of thousands of years.

Mr. WOOD. Among those people?

Doctor ABBOTT. Yes—so that the separation of languages had time to assert itself.

NO EVIDENCE OF HUMAN INHABITANTS PRIOR TO CLOSE OF ICE AGE

Mr. WOOD. Have these scientific gentlemen ever agreed on the probability as to the earliest period when there was any settlement here—any inhabitants on this continent?

Doctor ABBOTT. I think not, sir.

Doctor WETMORE. That is a matter of argument. At the present time, the archaeologists, mainly under the leadership of Doctor Hrdlicka, state there is no definite proof that man was here prior to the close of the ice age. On the other hand, the paleontologists who have been excavating the fossil fields in Florida, Oklahoma, New Mexico and other areas in the middle or southern regions of our country, find remains of man, or artifacts and tools made by man mingled with bones of animals that are supposed to have existed only during the ice age. They conclude, therefore, there is possibility that man came here during the Pleistocene or ice age. The matter is one of long controversy, and at the present time far from being settled. Within the past few months, there has been discovered a quarry in northeastern New Mexico in which are the bones of an extinct species of buffalo that is assumed to have lived during the Pleistocene, accompanied by arrow points of peculiar form. In several places these arrow points have been found to be resetting beneath bones of the extinct buffalo, which perhaps is an indication that man was here during the Pleistocene. A point yet to be decided is whether or not these buffalo are really Pleistocene animals, or whether they may have existed after the close of that period into what are known as Recent times. At any rate, it seems certain man was contemporaneous with them. I may say, further, that the arrow points found are of a peculiar shape, unlike those used by other modern American Indians, which might indicate considerable antiquity for them.

Mr. WOOD. About how much?

Doctor WETMORE. That is a difficult question to answer.

REQUESTS FOR SALARY INCREASES

Mr. NEWTON. Mr. Chairman, I must leave to go on the floor and, if I may, would like to say just a word. Several of these items that are under subdivision 2 of the memorandum submitted by Mr. Moore

you have gone into in part under International Exchanges, where the Budget has not allowed enough to take care of the advance in the classification. It does seem to me that in an institution like the Smithsonian we should take as good care of the scientific employees as we can, under the provisions of law, and I hope you will go into that very carefully and see if you do not agree with us that this should be done.

Mr. WOOD. Were those presented to the Budget?

Mr. NEWTON. Yes.

Mr. DORSEY. It is in our preliminary and supplemental estimates.

Mr. NEWTON. The Budget has taken the attitude that, in a desire to restrict expenditures and so on, here was a small institution that could be forgotten and not placed on the same plane as the others.

Mr. WOOD. Is this cut that is made in the estimates you submitted to the Budget an arbitrary cut of a certain percent?

Mr. DORSEY. No, sir; we submitted those in the preliminary and supplementary estimates.

Doctor ABBOT. I may say the Budget has, this year, given us quite a substantial increase in many lines over what we had before; but they did not see their way clear to make an increase in the salaries of deserving employees which would be in accordance with law, if the money was available, and which we feel such men as we have ought to get.

Mr. WOOD. Do all these additional appropriations you are requesting above the Budget estimates apply on the increase of salaries?

Mr. NEWTON. In subdivision 2; yes.

Mr. WOOD. What about the other subdivision; what is to be done with that?

INSUFFICIENCY OF APPROPRIATION FOR PRINTING

Mr. NEWTON. That is a \$10,000 item of printing. We have always been behind on the printing.

Mr. WOOD. You do not seem ever to be able to catch up. Every time we give you this additional appropriation you say you are going to become current and catch up, but you never do.

Mr. NEWTON. We have been making some progress along that line; but we were so far behind, not only in one division but in several, in the ethnological and also the National Museum. I think, has been far behind, it has been impossible to catch up. And it is going to take several years to do so. But we can not catch up if we are going to be cut down one year and given our estimate the next. It is very discouraging to the scientist to write his paper and then have it lay around and not be published for two or three or four years, and in some respects it ceases to be of value.

Mr. WOOD. How many years are they behind in these bureaus?

Mr. NEWTON. I could not answer that exactly.

Mr. DORSEY. The Bureau of Ethnology has something like, I should say, between twenty and thirty thousand dollars worth of manuscripts down there now that are practically ready for publication.

Mr. WOOD. How much does that mean in printing?

Mr. DORSEY. I say in printing or the cost of printing.

Mr. WOOD. Twenty to thirty thousand?

Mr. DORSEY. Yes, sir.

Mr. WOOD. Suppose an appropriation was given to print and bind everything you have down there, how much would it take to make you current, so that you would not have to come up here and be asking every once in a while for more?

Mr. DORSEY. That is pretty hard to say. I should say, speaking for the bureau that if you increased the appropriation by giving us \$25,000 more this year for printing under the bureau, that we would get current, sir.

Mr. NEWTON. That would be under the Bureau of Ethnology?

Mr. DORSEY. Under the Bureau of Ethnology only.

Mr. NEWTON. That does not take in the Museum?

Doctor WETMORE. The National Museum is, from this total appropriation of \$90,000 for printing and binding, allotted this year \$44,000. At the present time, December 20, there is available for the remainder of the year approximately \$9,000. On the 1st of July last I had an accumulation of over \$13,000 worth of manuscripts, which were then sent up to the Government Printing Office. Enough have gone up in the meanwhile to exhaust the available appropriation, with the exception of \$9,000, and there are still six months of the year ahead of the institution with a steady flow of material coming in for publication.

Mr. WOOD. Is all this material on which you are in arrears ready to be printed?

Doctor WETMORE. Yes. In the National Museum, I may say there is not at this moment an actual arrears, but on July 1 next there will be. In the Bureau of American Ethnology, on the contrary, there is an accumulation of manuscripts of several years' standing. The situation in previous years has been this: We have had available an appropriation of \$90,000 for printing and binding. Each year, in discussion before the Bureau of the Budget, it has been considered by that body that we could get along with less money and they have reduced us below that sum of \$90,000 and Congress, on each occasion, has seen fit to bring back the sum to the original \$90,000.

Mr. WOOD. How much did they give you this year?

Doctor WETMORE. \$90,000.

Mr. WOOD. The Budget did?

Doctor WETMORE. Yes; no cut.

Mr. WOOD. I thought you said that they did cut you?

Doctor WETMORE. On previous years. This year, it stands at \$90,000.

Mr. NEWTON. I was about to say that the requests that have gone in have been cut down in these preceding years and this committee has restored the amount of the request. In this particular year, as I understand it, the request put in was for \$100,000, instead of \$90,000, which was allowed last year by this committee, and the Budget allowed them last year's figure, or \$90,000.

Mr. WOOD. They are just one jump behind all the time.

Mr. NEWTON. Sometimes they have been two, but this item is just one jump behind. I presume, to get up, both in the Bureau of Ethnology and National Museum, it would probably require, roughly

speaking, about \$35,000 more than what has been allowed by the Budget.

Mr. DORSEY. It would take \$25,000 for the Bureau of Ethnology; I do not know about the National Museum.

Mr. WOOD. \$25,000 for that?

Mr. NEWTON. For the Bureau of Ethnology to get up to date.

Mr. WOOD. And \$10,000 for what other division?

Mr. NEWTON. For the National Museum; we are behind there. Is that approximately correct, Doctor?

Doctor WETMORE. That would be approximately correct; yes.

Mr. WOOD. Do you think if \$35,000 was appropriated and made available, that you would not be asking for any increases here ever any more?

Mr. DORSEY. Not for a considerable time, sir. Forever is a long time.

Mr. NEWTON. That would allow the Smithsonian to get current with the work and then, if the Budget would allow our requests thereafter, we would not ask for any more money.

VALUE OF PUBLICATIONS

Mr. MOORE. Doctor Wetmore, will you tell the gentlemen who determines what shall be published and what not?

Doctor WETMORE. In a general way, we handle the material in the order in which it comes to us; but, where certain publications appear to be especially meritorious, they are given a preference over others. In the National Museum, we give a certain preference to publications describing new species or new forms, because knowledge of that type is of particular value to scientific workers and should be made available as soon as possible. Following that, we take the comprehensive manuscripts that give detailed information of groups of animals or plants, and then the more general papers.

Doctor ABBOT. There is a committee which deals with every paper which is submitted—an expert committee. The paper is submitted to some one who is regarded as particularly expert in that line. Sometimes, if an expert be not found available in the Government service, it is even referred outside; we take men known in all parts of the country who are most expert in their lines and get a report on every paper as to whether it is worth printing, before it is printed.

Mr. NEWTON. I want to say, in closing, that I think the public, generally, gets a great deal out of the work of the Smithsonian and is becoming more interested year by year. I think that can be illustrated in this way: We went down a few days ago and there was a piece of some kind of borax, I think, or something of the kind, and they took a ton of that and, after the scientists got through with it they had a ton and a half of product from it. That is the only thing I know anything about where you multiply the weight and quantity.

Mr. WOOD. These oyster fellows down here can beat that.

Mr. NEWTON. I have not dealt with them, so I am not familiar with that.

Mr. DORSEY. Here are a bunch of letters I brought up here with me, from school teachers and others. Here is one from a surveyor, who winds up by saying—

The information from these papers was precisely what I have been seeking and could not find except in your institution. Many thanks.

Then there are letters from high-school teachers, college people, and one from the University of Minnesota asking for a duplicate copy of one of the Smithsonian publications that we sent them some time before, as they state theirs had absolutely been worn out by use. These are all appreciative letters from people who make practical use of the information in our reports, sir.

Mr. NEWTON. I hope when you acknowledge that you will mention the name of one of the regents. Thank you very much, Mr. Chairman.

PERSONAL SERVICES IN WASHINGTON

Mr. WOOD. Now this item of \$58,720: There is \$47,340 of that for personal services.

Mr. DORSEY. Yes, sir.

Mr. WOOD. You have the same number of employees and the amount is the same as you asked for in 1928?

Mr. DORSEY. Practically the same. There has been very little change in that. If the committee sees fit to allow the step up, Mr. Chairman, the total of the appropriation would be \$60,300.

Mr. WOOD. Would be \$60,300?

Mr. DORSEY. And the salary limitation would be increased to \$49,580.

Mr. WOOD. What per cent of the employees of this institution, all of the institutions under your supervision down there, are absent without pay throughout the year?

Mr. DORSEY. A very small per cent, sir.

Mr. WOOD. As much as three per cent?

Mr. DORSEY. I should not think so; nothing like that.

Mr. WOOD. What do you do with the salary when it is unearned by them and unpaid to them?

Mr. DORSEY. That is the only thing we have to use, sir, for building up: in the case of the Museum, of building up collections or doing new work. That is done through the turn-over.

Mr. WOOD. Do you use it for promotions?

Mr. DORSEY. Oh, no, sir.

TRAVELING EXPENSES

Mr. WOOD. You have an item of \$6,510 for travel expenses: What is that?

Mr. DORSEY. That is field work; these men who are sent out in the field; field expenses. These ethnologists go out. For example, the man who goes to Alaska has his travel and subsistence all paid.

Mr. WOOD. How many men do you have out doing that kind of work?

Mr. DORSEY. We have four. There are about 9 men down there, but we have out in the field each year, I should say, about 8 or 10

men. Sometimes they are not regular employees of the bureau; sometimes Doctor Wetmore details a man to go out and make a special investigation for the bureau, which pays his expenses.

EDUCATIONAL EQUIPMENT

Mr. WOOD. The largest item you have here is for educational equipment, \$3,875, under equipment.

Mr. DORSEY. That is for books and the purchase of manuscripts. Miss Densmore, who is not a regular employee of the bureau, is engaged in making investigations of Indian music that has been very highly thought of. Her work has been reproduced in operas. We buy manuscripts from her. We buy other manuscripts, too, that are prepared by men not connected with the bureau. Here is a book of Miss Densmore's in which you see illustrations of specimens of Indian music and musical instruments.

Mr. WOOD. From where are these specimens gathered?

Doctor WETMORE. These are specimens in the National Museum that come from all over the world. This particular group deals with the American Indian from all parts of the country.

Mr. WOOD. These are in the institution, are they?

Doctor WETMORE. Yes.

Mr. WOOD. According to this book, I see the piano is an evolution of the dulcimer, isn't it?

Doctor WETMORE. Yes. We have in the National Museum a group of 200 or more pianos showing the development of the instrument in all its different forms from the beginning. They have been placed there by Mr. Hugo Worch, of Washington, without expense to us whatever.

Mr. WOOD. Full-sized pianos?

Doctor WETMORE. Yes. Mr. Worch is deeply interested in the subject and has, for many years, bought up all the types of strange antique pianos he could find, has taken them to his own place of business here in Washington, refinished them, and put them in good condition, and then brought them down and given them to us as an outright gift. They form the most wonderful collection of that kind in the world.

Mr. WOOD. Will they operate?

Doctor WETMORE. They will. We keep them closed in such a way, however, that they can not be played; otherwise we would have bedlam let loose occasionally by some of the school visitors.

Mr. WOOD. Have you a collection showing the development of the telephone?

Doctor WETMORE. Yes: we have the original Bell instruments.

Mr. WOOD. We have some of those developments at Purdue. Some were very crude, weren't they?

Doctor WETMORE. Very crude, indeed.

INTERNATIONAL CATALOGUE OF SCIENTIFIC LITERATURE

Mr. WOOD. The next is the International Catalogue of Scientific Literature:

International Catalogue of Scientific Literature: For the cooperation of the United States in the work of the International Catalogue of Scientific Litera-

ture, including the preparation of a classified index catalogue of American scientific publications for incorporation in the international catalogue, clerk hire, purchase of books and periodicals, traveling expenses, and other necessary incidental expenses, \$7,260, of which amount not to exceed \$7,100 may be expended for personal services in the District of Columbia.

Doctor ABBOT. Mr. Gunnell will speak to that, sir.

Mr. GUNNELL. We ask the same appropriation we have asked for several years. As I have stated before the Budget and this committee each year, a large part of each yearly appropriation reverts to the Treasury, as the organization is in such an unfortunate financial condition that no publication has been possible since the war. But every effort is being made to keep the organization alive, so that when reorganization is possible we will have a living organization. Each year Congress has made the necessary appropriation so that in the event of publication being resumed necessary data would be immediately available; in asking for appropriations each year I have promised to turn back as much as possible to the Treasury. In 1925, \$1,528 reverted to the Treasury; in 1926, \$1,638; and in 1927 there will be \$768.

Mr. WOOD. What do you do under this appropriation?

Mr. GUNNELL. Keep the functions of this bureau going, these functions are to provide data for making a complete catalogue and subject index of the scientific literature of the United States, to be assembled with similar data from other countries and published through international cooperation in London. Since the war conditions have made it impossible actually to publish the work. There was a conference held in Brussels in 1922, and all foreign bureaus agreed to keep the routine work current and to keep the records as much up to date as possible, pending the time when publication could be resumed. Our part of the work is done by this bureau.

Mr. WOOD. How much material have you got together?

Mr. GUNNELL. In 1922, the last publication, we furnished approximately 30,000 references. The scientific literature of the United States each year is about 10 per cent of the whole. The catalogue of the publications is not classified, for when reorganization takes place classification will be done under modern conditions, which have changed and are changing considerably. A large part of the money we save each year represents the cost of classification. We keep records which are essential for indexing but not those needed for classifying.

Mr. WOOD. Is all this scientific literature classified and catalogued in the Congressional Library?

Mr. GUNNELL. No, sir.

Mr. WOOD. No portion of it?

Mr. GUNNELL. I could not say that; but there is no systematic classification or collection of the literature of pure science, which is the function of the international catalogue. There was no similar organization in the world when this work began, in 1900; and there is no similar organization now.

Mr. WOOD. Do you mean to say there is any sort of scientific literature that is published in this country or in Europe than can not be found, by catalogue or index, in the Congressional Library?

Mr. GUNNELL. If you knew exactly what you were looking for by title and author, you could find it in the Library of Congress, or

in any well-organized library. But if you are looking up a subject, there is no catalogue published that would give you the information desired. May I give you a little description of what this organization is?

Mr. WOOD. Yes; I think you had better do so.

Mr. GUNNELL. The first secretary of the Smithsonian Institution, Professor Henry, in 1856, realizing the necessity of an international catalogue of scientific literature, brought the subject to the attention of the British Association for Advancement of Science, at the Edinburgh meeting of that year, and, because of his suggestion, the great catalogue of the Royal Society of London was issued. This was a catalogue of papers published by scientific societies and was published up to 1880. It was then realized the enterprise involved too much labor for any one country or any one society to undertake and, through the Royal Society, an invitation was issued to all countries and to all scientific societies of the world to cooperate and the International Catalogue came into existence. Publication began in 1900. Seventeen volumes were published each year, one for each of the 17 principal divisions of science beginning with mathematics. These annual volumes contain a classified index record of all the current scientific publications of the world. The publication continued for 14 years, through the issue for 1914, the last volume of which was published in 1922, when the executive committee had to stop publication on account of the war conditions.

Mr. WOOD. The conditions have not been so readjusted that they could be resumed?

Mr. GUNNELL. No, sir. I received a letter last week from a friend in London, in reply to a letter asking what could be done about resuming publication. He said, speaking of the impoverished condition of the European countries, that the governments and private individuals were so impoverished that it was practically impossible for them yet to resume their part of the expenses of publication.

Mr. WOOD. Then there is not much use of this appropriation being continued, is there?

Mr. GUNNELL. The only use of it is, as I have stated to this committee each year, that the organization is kept in existence. It was organized under great difficulties, as you probably know better than I do, getting the United States Government to make an appropriation for an international undertaking, in the first place, is very difficult and the same difficulty exists with the other 33 Governments of the world. If the organization is abandoned now it will be practically impossible ever to start it again.

Mr. WOOD. It kind of looks like it is abandoned, don't it?

Mr. GUNNELL. No, sir; I think not.

Mr. WOOD. In the meantime we are paying out \$7,000 a year here and getting nowhere.

Mr. GUNNELL. Well, you are getting records of all the scientific publications of the United States which are available in the event of the publication being resumed.

Mr. WOOD. Suppose it is not resumed, then what? We have just been wasting this money all these years back?

Doctor WETMORE. The material itself will be valuable in our own research work in the Smithsonian Institution.

Mr. WOOD. You could get all that material for your own purposes in the Congressional Library.

Doctor WETMORE. Yes; but the man would be under the necessity of making his own research and searching of titles and it would be considerable labor.

Mr. WOOD. You think, then, it is of sufficient importance to you, even though these other nations do not function, for you to maintain this activity?

Doctor WETMORE. At the present time, I do.

Mr. WOOD. What do you mean by "at the present time?"

Doctor WETMORE. Under existing conditions, as they are now.

Mr. GUNNELL. The International Catalogue furnished what was practically a digest of scientific subjects and, just as a legal digest is necessary to the lawyer, this is necessary to the scientific man.

Mr. WOOD. Yes, but all you are getting now is the records of the United States.

Mr. GUNNELL. Yes, sir; that is all we have ever done. We simply do our part of the world work, being 1 of the 33 bureaus.

Mr. WOOD. Was not the result of the labors of these other countries available to you?

Mr. GUNNELL. It was all compiled in the 17 annual volumes; all assembled and published in London.

Mr. WOOD. And you are getting none of their material now, are you?

Mr. GUNNELL. No, sir; and they are getting none of ours, because they have not the money to publish.

Mr. WOOD. It is not any use to go on, if you are getting none of their work and the other countries are getting none of yours. So that all you have here is that which originates in the United States.

Mr. GUNNELL. It is the record to be assembled with the work from other countries, to be published in the 17 annual volumes which will be available when we can pay to have them printed.

Doctor ABBOT. In other words, the great hope of the world is that some big institution that has the money will see its way to make an appropriation to start this international publication again. In the meantime, the different governments of the world are continuing this assembling of the data which would go into these publications and are keeping on with the hope that, within some few years, some public-spirited individual will give the money actually necessary to publish this information which is being secured.

Mr. WOOD. What contribution was made by the different countries toward this publication?

Mr. MOORE. As I understand from Mr. Gunnell, all the work is done now that was done when this international organization was active, except you do not assemble it in connection with the results of the other nations?

Mr. GUNNELL. No, sir.

Mr. MOORE. But you are making a collection of the material?

Mr. GUNNELL. Of our index; but we are not classifying it, because there have been so many changes in scientific knowledge. For example, when this work began, we knew nothing of radio; it was only the Hertzian ray then, and only scientific men had ever even heard of it. When publication is resumed methods of classification will

have to be brought up to date. And if we classified this material now, it would all have to be reclassified when new classification schedules are made; therefore, we are not classifying it, but turning the money needed for that purpose back to the Treasury.

Mr. MOORE. I think Mr. Wood wants to know for what purpose you are now spending money.

Mr. GUNNELL. To assemble the data necessary to make a classified card index of the scientific publications of the United States in a form usable for the international catalogue.

Mr. SUMMERS. Would it serve any useful purpose if the International Catalogue is never published?

Mr. GUNNELL. We would have a catalogue of the scientific publications of the United States in manuscript card form.

Doctor ABBOTT. Anyone who wants to find out anything can come to the Smithsonian Institution and consult you and get it?

Mr. GUNNELL. Yes.

Mr. WOOD. Are these other countries doing anything towards getting material together?

Mr. GUNNELL. Yes, sir; they made the promise at the meeting of 1922 in Brussels that they would all keep the work up. The wording of the resolution was: "That the convention is of opinion that the international organization should be kept in being through mutual agreement to continue as far as possible the work of the regional bureaus until such time as it may be economically possible to resume publication."

Mr. WOOD. But you do not get any material at all from them?

Mr. GUNNELL. No, sir.

Mr. WASON. And do not send any material to them?

Mr. GUNNELL. No, sir; we never received it directly. The material we collected here was sent to London where the central bureau was located and there assembled with all the records from all the world and there published.

Mr. WOOD. And published in London?

Mr. GUNNELL. Yes, sir.

Mr. WOOD. How many volumes were published?

Mr. GUNNELL. Seventeen volumes a year for 14 years.

Mr. WOOD. How much did they cost to publish?

Mr. GUNNELL. They cost \$85 a year for each annual set of 17 volumes. That simply covered the cost of printing and distributing. It was published at cost; there were no free copies but each subscriber paid for his proportion of the cost of printing and assembling.

Mr. WOOD. Then the cost to each one of the countries was not very considerable?

Mr. GUNNELL. \$85 for each set each year.

Mr. WOOD. And it was practically self-sustaining?

Mr. GUNNELL. In 1914, it was practically self-sustaining.

Mr. WOOD. They do not take much interest in it over there, I guess; that is about the substance of it.

Mr. GUNNELL. They take considerable interest in it over there; but when the franc is now worth 4 cents, and was worth 21 cents when work began, and they have to pay at the same rate, it is quite an item.

Mr. WOOD. It is just due to the general chaotic condition in the countries over there.

Mr. GUNNELL. That is what I have tried to stress in my annual reports.

Mr. WOOD. You have three people; I suspect you had better get busy or we might have to drop this activity. I am not blaming you at all; but, from the information we have, it does not look like it is of much use to continue it much longer.

ASTROPHYSICAL OBSERVATORY

Now we come to the Astrophysical Observatory:

Astrophysical Observatory: For maintenance of the Astrophysical Observatory, under the direction of the Smithsonian Institution, including assistants, purchase of books, periodicals, and apparatus, making necessary observations in high altitudes, repairs, and alterations of buildings, preparation of manuscripts, drawings and illustrations, traveling expenses, and miscellaneous expenses, \$32,060, of which amount not to exceed \$29,780 may be expended for personal services in the District of Columbia.

Who will tell us about that?

STUDIES AND MEASUREMENTS OF SUN INTENSITY

Doctor ABBOT. The Astrophysical Observatory at the present time maintains a station on Table Mountain, in California, overlooking the Mohave Desert and another station near Calama, Chile, at 9,000 feet, where they make daily measurements of the intensity of the sun's heat, which is the energy which keeps life going. If one should ask you: Is the sun's heat growing less or more? Does it fluctuate from day to day? Is there a probability that these fluctuations could be used for forecasting weather conditions? We would have to reply that the measurements have only been made since 1918, and there has not a long enough period elapsed so that one could forecast whether next season is going to be a good or poor one. Unfortunately, Sir Isaac Newton and all the old astronomers made no measurements of this kind, and it is only since 1918 that we began making measurements regularly in Chile and continuing here in the United States, also, that we have a continuous series of observations of the heat of the sun on which all life depends. I hope this work will be carried on through another generation so that, in the next generation, they will have a basis from which they can compare the climatic and weather elements of the world, with solar radiation, and actually be able to tell whether the variation of the heat of the sun affects the weather.

In the meantime, in the past year, some very interesting results have been obtained. In the first place, as in former years, we find that when the activity of the sun is great, as visual observations would indicate it, as showing in the sun spots, and other features of activity on the sun's disc observed telescopically, then the radiation from the sun, the heat we receive from the sun, is also greater than the average. So, along with an eleven-year march of the sun-spot activity, there is a change of the intensity of the sun's rays which go to warm the earth of approximately 3 per cent.

FORECASTING OF WEATHER CONDITIONS

Then, again, we found within the last year by analysis of past observations that there is a regular periodicity in the variation of the sun—a periodicity of approximately $25\frac{2}{3}$ months; so that, if this continues, and if it shall be found there are changes in terrestrial affairs which hang on to the variations of the sun, we shall be able to forecast, by this periodicity of $25\frac{2}{3}$ months, which has existed for the last six years, what weather conditions to expect.

Mr. WOOD. What do you mean by “periodicity”?

Doctor ABBOT. I mean to say that there is a regularity to the increase and decrease in intensity of the sun's heat with a period of a maximum of $25\frac{2}{3}$ months. If that condition continues hereafter, there will be a means of forecasting two years in advance whatever may hang on that periodicity. We have also found a less marked periodicity of fifteen months and another one of eleven months. It looks hopeful, then, that whatever may be found to hang on the variations of the sun we may be able to forecast by means of these periodicities which we have found to persist for the last six years.

Mr. WOOD. Is that really your idea, that they will be able to tell what the weather conditions will be on a given day a number of years hence?

Doctor ABBOT. There is quite a strong feeling among scientific people that this is a very hopeful line. There are some, even, who have an impression they are already able to predict. I have here, for example, a report which I presume you saw in the public press the other day, that a certain gentleman here in Washington is criticizing the Weather Bureau for not going into this. The Weather Bureau, very rightfully, is very conservative in relation to these matters and proposes to wait until we have a long series of accurate observations before they will attempt to apply it; but others, who are not responsible for the expenditure of large amounts of public funds, and who are free lances, and can do as they like, have gone into the subject of the possibility of making predictions on the basis of the variations of the sun. Such a man as Mr. Clayton, who was formerly chief forecaster of the Argentine Government and who is now a private citizen in Massachusetts. He has a bureau which actually makes forecasts for parties who will pay him and he gets the information as to the state of the sun by consulting the Weather Bureau maps, on which, for the last year or so, our values giving the status of solar radiation have been printed every day. By the aid of that information he is making forecasts which his clients, some of them, regard as quite valuable. For example, the Boston Retail Trade Board, made a comparison, extending over 371 consecutive days (that is to say, for a little more than a year), for the 53 weeks ending October 17, 1927. According to their comparison, for which Mr. Clayton was in no way responsible, for it was done entirely independent of him—he did not even know they were making this comparison—they concluded that he was right on 244 days out of the 371, the Weather Bureau being as they state right for Boston on 148 days. On precipitation, as they state Clayton was right on 234 days; the Weather Bureau on 177 days. Further, they state that the Weather Bureau predictions arrived at the different

chambers of commerce 19 hours before the next business day; that Clayton's forecasts, being given out for seven-day intervals, arrived on an average, 89 hours before the event. This report, which they got out privately for members of the Boston Retail Trade Board, seems to have been spread about some, for I received a copy of it from a Washington man by the name of Brown sometime ago.

Mr. WOOD. Don't you think it would be a good idea for us to dispense with our Weather Bureau and get Clayton?

Doctor ABBOT. I do not mean to recommend any such thing as that at all. The United States Weather Bureau is a very excellent and able organization and, naturally, is a very conservative organization, seeing that they have the responsibility for spending some couple of millions of the Government's funds.

Mr. WOOD. How does it come that Clayton is doing a better job than they are?

Doctor ABBOT. I asked him on what basis he made his predictions; I was in New England two or three weeks ago and I asked him on what basis he was making these forecasts which were reported, and he stated it was from a study of the variation of the sun by the Smithsonian's Astrophysical Observatory, which is the only one in the world making this investigation. Now he states that it is by studies he has made extending over a number of years and dealing with the condition of affairs not only in Boston, but all over the United States and Canada, and even different parts of the world, and comparing the conditions with the variations of the sun, that he has been able to lay a ground-work (which is in his knowledge alone; he is the only one who has done this), by which he makes these forecasts. He even told me that, based upon these periodicities of which I spoke a moment ago, he felt he was now in a position to offer a seasonal forecast. Several gentlemen representing different interests having approached him, he was offering to make these seasonal forecasts for them for a certain sum of money which, if they were not satisfied after the end of a couple of years, he would return to them. That seemed to be a fair proposition.

Now I am merely reporting this, Mr. Chairman, in connection with your inquiries; not because I hold a brief for Clayton or anybody else. But, as I say, the work being done by Clayton is based on the observations of the Astrophysical Observatory, which is the only institution in the world making these measurements. It seems to give promise of a possible improvement in weather forecasting in the years to come. I think, sir, the promise is sufficient so that the expenditure of the money, to keep these observations going, is well warranted.

Mr. WOOD. Do you get any practical returns from the observations thus far made in our Weather Bureau forecasting; do they take advantage of the results of your observations?

Doctor ABBOT. I think they are not ready to do so yet, sir. They have been publishing them, as I remarked, for the last year or two on their weather maps.

Mr. DORSEY. They started last spring a year ago.

Doctor ABBOT. For the last two years, now, they have been publishing on the daily weather map the results which we telephone to

them each morning, representing the state of the sun as we observed it in Chile for the preceding day.

Mr. WOOD. Have you had anybody trying his hand at forecasting from these observations?

Doctor ABBOT. No, sir. According to the law the Government forecasting is all in the hands of the Weather Bureau.

Mr. WOOD. I understand; I meant not for public use, but as a part of your experimentation.

Doctor ABBOT. We have felt, sir, the matter of getting observations of the condition of the sun was as much as we could attend to, and the exceedingly complex and laborious service of trying to reduce solar observations to systems of forecasting was not ours, but in the field of the meteorologists.

Mr. WOOD. If you do not apply the result of your experimentation to some practical use, how do you know whether you are getting anywhere or not?

Doctor ABBOT. We leave that to the experts in those lines, sir. The matter of making such observations of the sun is one which is exceedingly difficult. We use apparatus which is sensitive to changes of a millionth of a degree in temperature, and we have to allow for the losses of the solar rays in their passage through the ocean of atmosphere above us, which is loaded with dust, water, vapor, clouds, and the like. It is an exceedingly difficult thing to get accurate measurements. We feel that this is our job, and the job of applying them to forecasting is the work of the professional meteorologists.

Mr. WOOD. Does this man Clayton have access to your observations or record of observations; does he rely upon that in any way?

Doctor ABBOT. Only so far as he gets them indirectly from us. We could not, of course, using Government money to obtain these observations, supply them directly to a private individual for commercial forecasting purposes. We do supply them to the United States Weather Bureau, which publishes them every day upon the weather map.

DESCRIPTION OF "SUN SPOT"

Mr. WOOD. What makes those sun spots that seem to be controlling?

Doctor ABBOT. The sun spots, sir, are sort of whirlpools in the solar gases. You must recall that the sun, being twice as hot even at its surface as an arc light, is so hot that none of the ordinary material such as iron or metal of other kinds can exist in solid form, or even in liquid form; they are all in a gaseous form; but, owing to the enormous size of the sun (it is some 350,000 times as heavy as the earth), the gravity up there is perfectly tremendous, and compresses these gases so that they are as dense or even more dense than water—notwithstanding their gaseous condition. Still, they are gases. And in those gases, just as you see in the atmosphere sometimes of the desert, there are whirlpools which form. Such a thing is a sun spot. This whirlpool in the case of the sun gradually rises upwards, just as you see in the whirlpool in the atmosphere, and as it comes up it arrives at a region of less pressure. The pressure increases very rapidly as you go down into the body of the sun. As the gases are brought up by the whirl-

pool they naturally expand, and in expanding they become cooler (just as any gas will if allowed to expand). That is the reason the sun spot looks dark, for the gases in a sun spot are cooler than those which surround them. I say they are cooler; but, when you reflect that the sun's surface is twice as hot as an arc light, the coolness of the sun spot is not sufficient to make it really very cool. If seen alone, apart from their brilliant background they would glow more brightly than an electric light filament.

So the sun spot is a center of a circulatory outwardly directed motion, bringing the gases there higher to a region of diminished pressure and thereby cooling them. There is, in connection with it, a magnetic field for, as the late Professor Rowland showed, the rotation of charges of electricity of which the solar gases are full is equivalent to current. As you know, in electric telegraphy, the current produces a magnetic effect. So that there is a magnetic field in the sun spot. Then again, those fields are very curious, in that the polarity of them is so remarkable. The sun spots come in pairs; for instance, one will be a north pole, the other will be a south pole. But if in the northern hemisphere of the sun the advancing spot is of north polarity; in the southern hemisphere the advancing sun spot would be of south polarity. But after a period of 11 years has elapsed, and a new group of sun spots begins to arise, the polarity is just the reverse. So that, in order to bring the sun back to the condition which it has to-day, 22 years must elapse; there is a period there of 22 years.

Mr. WOOD. When one of those spots is created, does it exercise its influence for 22 years?

Doctor ABBOT. I mean, sir, the condition which creates the North Pole, in the northern hemisphere of the sun, of the advancing spot will be repeated 22 years from now, so that there will be another pair of spots rising at that time in which the advancing spot will be of north polarity on the northern hemisphere.

Mr. WOOD. What has become of the sun dogs I used to see when I was a boy?

Doctor ABBOT. I think maybe you would see them yet if you had a suitable occasion. It takes a very curious condition of our atmosphere to produce those.

Mr. WOOD. We used to see them every winter when it was cold enough; sun dogs would come out in our section of the country every winter.

Doctor ABBOT. But, Mr. Chairman, at that time you were not a Member of Congress, you see, and now you are staying here in Washington in the smoke of a large city instead of where you were looking at them at that time.

Mr. WOOD. That was out in Indiana, just about straight west of here.

Doctor ABBOT. I think maybe if you were out there in the same place you would see them now, sir.

Mr. WOOD. Maybe my eyesight is not as good as it used to be; I have not seen them for a long time.

Doctor ABBOT. Those sun spots you were inquiring about are often so large that one could drop the whole world into one of them without touching the edges at all.

Mr. WOOD. Is there anything in this theory of the sun sloughing off and getting smaller each year?

Doctor ABBOT. That, sir, is a recent theory which accounts for the radiation of both the sun and the stars. It was formerly a matter of entire uncertainty what was the source of the enormous quantity of radiation which the sun and stars emit. At this distance the sun sends so much energy that, if turned into mechanical work, it would equal a horsepower per square yard. If you would take a sphere as big as 93,000,000 miles radius (the earth's solar distance) and count the number of square yards of surface upon it, you will see the number of horsepower the sun is sending. The source of that enormous output for a long time was uncertain; but in recent years it has been shown the atom of hydrogen, for example, consists of one positive and one negative electric charge, and these are very close together, so close in fact that in a space as large as dice you play backgammon with, there are 300,000,000,000,000,000 of the molecules, twice as many atoms, and each atom composed of a large number of these electric charges. You can imagine how small the region is in which these electric charges rotate, but the opposite electric charges are kept apart by their furious revolution. If they should stop, then there would be annihilation, so that the atom would cease to be. It is thought now the sun and stars furnish their tremendous amount of energy by the actual annihilation of the atoms of which they are composed. The sun, under that theory, is reducing in mass, and if it continued to radiate at the present rate forever would eventually be entirely destroyed. It has been computed, however, there is sufficient matter residing in the sun at the present time to last through 15,000,000,000,000 of years.

ESTIMATES FOR 1929

Mr. WOOD. Now, your appropriation this year is just the same as it was last year?

Doctor ABBOT. Yes, sir; with the exception of the change in classification. Should that be made, there will be—

Mr. WOOD. How much additional would that be?

Mr. DORSEY. The total appropriation would be \$33,200; the salary limitation would be \$30,920—an addition of \$1,140.

LOCATION AND MAINTENANCE COST OF STATIONS

Mr. WOOD. Are you still operating that plant down in Chile?

Doctor ABBOT. Yes, sir. That is our best station; it is at an altitude of 9,000 feet, has a beautiful sky, and we get the best results from there.

Mr. WOOD. Have you one in Arizona?

Doctor ABBOT. We moved that one over into California at the expense of a friend of the institution. That has proved to be decidedly a better place. They have last year observed on 80 per cent of the days, whereas they observed on only 70 per cent of the days in

Arizona. It is about 2,000 feet higher than the former station and the sky is clearer. It is situated about 60 miles from Los Angeles, overlooking the Mohave Desert. The National Geographic Society, appreciating the value of this work on solar radiation, has furnished me with a sum of money to maintain for several years still another station in southwest Africa. That is not at all at the expense of the Government but at the cost of the National Geographic Society. We, however, are in charge of the station, and the observers there are cooperating with ours to make the most accurate measurements of the sun's variation.

Mr. SUMMERS. About what does it cost to maintain each station?

Doctor ABBOT. The appropriation here, sir, is \$32,000 for last year, and with that we have maintained the station in California and the station in South America, and the central station in Washington, which coordinates the results. So that I may say \$10,000 a year or thereabouts is sufficient to maintain one of these stations in the wilderness. Of course the difficulty in that matter is that young men do not like to stay long in an absolute wilderness, miles and miles away from their nearest neighbors, having to bring water for 10 or 12 miles, and without any of the comforts of civilization. Not even an insect or birds or any creeping thing of any sort of life exists at the station in Chile. So the difficulty is to get new qualified persons every two or three years to conduct the work there, and our anxiety is to keep the work going.

Mr. WOOD. You ought to be able to draw your force from those seeking solitude.

Doctor ABBOT. It is a curious thing, sir, that after they have been out there for a while they get to like the desert conditions. But the isolation wears upon them so that after three years we have to replace them.

ADDITIONAL ASSISTANT SECRETARY

Mr. WOOD. The next item is for the salary of Doctor Wetmore:

For an additional assistant secretary of the Smithsonian Institution, \$7,500, during the present incumbency; and in the event of a change in incumbency the salary of such position shall be in accordance with the provisions of the classification act of 1923 and section 2 of this act.

Doctor ABBOT. That is the same as last year, sir, and I think he very well deserves it.

NATIONAL MUSEUM

CASES, FURNITURE, FIXTURES, AND APPLIANCES

Mr. WOOD. Next is the National Museum:

For cases, furniture, fixtures, and appliances required for the exhibition and safe-keeping of collections, including necessary employees, \$29,500, of which amount not to exceed \$13,000 may be expended for personal services in the District of Columbia.

Doctor ABBOT. Doctor Wetmore will speak for the National Museum, sir.

Doctor WETMORE. The appropriation for furniture and fixtures for 1929 carries an estimate of \$29,500. There is appropriated for

1928—the current year—\$26,500. The increase of \$3,000 is estimated to provide for additional storage space for our collections. Our present funds are insufficient as when we asked this present year for estimates from the curators for needed storage for new collections that had come into their care we received a total figure \$8,000 greater than the appropriation. During the past year the total number of specimens received was 402,531—approximately 150,000 more than came to us the previous year. This great increase of material must be placed carefully in proper containers in order to preserve it.

The increase of \$3,000 is allotted as follows: \$1,000 under supplies and materials to provide for lumber and similar materials for making additional cases and \$2,000 under scientific equipment to permit the purchase of glass jars and vials, pasteboard boxes and trays, insect drawers, and similar needed containers.

The great increase in the collection this year has come from a number of sources. We have had the material, for example, from the Stirling expedition to New Guinea, which by means of one of the main rivers penetrated central New Guinea and came finally to the land of the pigmies in the mountains of the interior. Mr. Stirling found the pigmy people living under the culture conditions of the Stone Age; their implements were of stone, such as the small stone hatchet shown here. We have other stone axes much larger that were used for cutting trees, hewing out canoes, and similar work. The implement I now show you is a stone knife and was used for skinning animals and other cutting. These people, at the time of the coming of Mr. Stirling, had no steel. He could obtain almost anything from them he desired for the exchange of a small knife, bit of steel, or iron of any kind. The pigmies know some of the good things of life, though, as they use tobacco which they twist on a stick in order to carry it conveniently; it is smoked in a pipe. They ornament themselves in various ways. Here is a necklace made of the feathers of a cassowary.

Mr. WOOD. Is that a bird?

Doctor WETMORE. Yes, a species half as large as an ostrich. And here is a lady's skirt. [Laughter.]

Mr. WOOD. They are right up with our people so far as short skirts are concerned, aren't they?

Doctor WETMORE. It would appear they are a little bit ahead of them.

Mr. SUMMERS. What country is that?

Doctor WETMORE. That is in the interior of Dutch New Guinea. I have brought these few specimens to give you some idea of the interesting and valuable things that we receive. Fourteen cases of this type of material came into the museum this last year as a gift from Mr. Stirling—one of the most wonderful collections from New Guinea that has ever been brought out—hundreds and hundreds of specimens.

Mr. WOOD. This \$3,000, you say, is for the purpose of providing cases to take care of new exhibits?

Doctor WETMORE. Of these and similar things, important collections have been received in all our departments. The increase of specimens on our catalogues this last year amounted to more than 402,000 separate items, all very valuable things to our collections.

We are under the necessity of providing adequate housing to preserve them where they can be kept for study and investigation.

Mr. WOOD. There is no addition in the personal services at all?

Doctor WETMORE. The personal services, as shown here in the estimates, remains the same as last year. In the memorandum Mr. Moore presented, there is a recommendation of an increase or step-up of \$60 for one man.

Mr. WOOD. And that would be additional to the \$13,000?

Doctor WETMORE. This would make the salary limitation \$13,060 and the total appropriation would be \$29,560.

HEATING, LIGHTING, ETC.

Mr. WOOD. The next item is:

For heating, lighting, electrical, telegraphic, and telephonic service, and traveling expenses, \$83,340, of which amount not to exceed \$49,840 may be expended for personal services in the District of Columbia.

You are asking for \$83,340, which represents an increase of \$4,000?

ADDITIONAL EMPLOYEES

Doctor WETMORE. That increase amounts to \$3,840. This entire amount is allotted on the salary roll to provide three additional employees. At the present time, the heating and lighting plant located in the Natural History Building provides heat and light for the five buildings in which the exhibits of the National Museum are shown or stored.

Our present salary roll carries three engineers, one for each of the three 8-hour shifts of the day. This makes no definite provision for annual leave or sick leave. As a matter of fact, we require the men to take their annual leave during the summer, when the plant is shut down and we are buying electricity from one of the local companies. When we are under the necessity of getting additional assistants for temporary employees, we have that need during the winter season when engineers are very much in demand and it is extremely difficult to get them at the salary we must pay, especially with the current ruling of the comptroller that a temporary employee is entitled to no annual leave. On the average, when we succeed in getting a temporary engineer, he stays less than two months. The present situation is such that these men are on duty Sundays and all other holidays and, at the most, we can allow them only two days off a month to recompense them for extra duty.

Mr. WOOD. Is the purpose of this increase to hire three additional men?

Doctor WETMORE. One additional engineer, and then an additional fireman, on the same basis. We have now four firemen on the regular staff and, during the coldest weather in the winter, we employ two others. This also takes care of only the regular 8-hour shifts. The present number is inadequate for our needs.

Mr. WOOD. You show an addition here of three: What is the other one?

Doctor WETMORE. The other one is an elevator conductor. We have now, in the Natural History Building four passenger elevators

and two freight elevators. We have three men to operate these six elevators. This is effected by keeping two passenger elevators running during the day, and using the third man as a relief for the two men on constant duty; in the intervals between, this man operates one of the freight elevators. The passenger elevators are operated on Sundays and holidays so that under the present situation we can give each one of these three men only 14 days a year to recompense him for his Sunday and holiday services. During the summer time, we put on an additional man for four months to allow them their annual leave. The present situation, however, is not fair to the men and does not give adequate service to the public. We need another elevator conductor very much, indeed.

Mr. WOOD. If this amount Mr. Moore and Mr. Newton asked for is allowed, would there be any portion of it to apply to this item?

Doctor WETMORE. There will be an increase of \$700. The total appropriation would then amount to \$84,040, and the salary limitation would be increased to \$50,540.

CONTINUING PRESERVATION, ETC., OF COLLECTIONS

Mr. WOOD. The next item is as follows:

For continuing preservation, exhibition, and increase of collections from the surveying and exploring expeditions of the Government, and from other sources, including necessary employees, travel, and all other necessary expenses and not exceeding \$5,500 for preparation of manuscripts, drawings, and illustrations for publications, \$483,110, of which amount not to exceed \$464,680 may be expended for personal services in the District of Columbia.

That shows an increase of \$10,000.

SALARY INCREASES

Doctor WETMORE. The total increase is \$9,600. Of this, practically all is contemplated for the salary roll. At the present time I have in force on this roll reallocations in salaries made by the Personnel Classification Board, mainly on appeal by employees, amounting to \$4,900, covering cases submitted by 21 persons. That is effective now, and is included in the estimates for the appropriation for next year, as it will also be in effect at that time.

Mr. WOOD. You are only increasing the number of your employees by one?

Doctor WETMORE. That is all, sir.

Mr. WOOD. These increases, amounting to \$9,000 plus, is just a step-up in all of the grades, or a portion of them?

Doctor WETMORE. That is not a step-up at all; \$4,900 is due to a reallocation on the part of the Personnel Classification Board. Certain employees who have felt that they had been improperly classified made appeals to this board; they have had their appeals recognized and their salaries have been increased accordingly; these reallocations are now in effect. I have to carry them by a retrenchment in the existing salary roll.

Mr. WOOD. That is due entirely to the result of the action of the reclassification board?

Doctor WETMORE. \$4,900 of it; yes, sir.

ADDITIONAL ASSISTANT CURATOR

Mr. WOOD. To what is the other attributable?

Doctor WETMORE. There is included also provision for an additional assistant curator in the division of mammals.

Mr. WOOD. How much for that?

Doctor WETMORE. \$3,000. That is for the salary of one man in the division of mammals, which carries one of the largest collections in the National Museum. It is the largest collection of its kind in this country and second largest in the world. At the present time it is administered by one curator, one man only on the scientific staff. The work is such that this man should have an assistant, not only to assist him in his routine and scientific work, but also to be in training so that he will be prepared to take over the work of the division when this older man has to move on.

Mr. WOOD. How old is the older man?

Doctor WETMORE. About 60.

Mr. WOOD. And the younger man?

Doctor WETMORE. The younger man is in prospect; he is not on the roll and can not be until next year. Such a man, I might say, can not be obtained as we employ stenographers, clerks, or other assistants. Such men are of peculiar training, and there are only a comparatively few in this country at any one time.

Mr. WOOD. That accounts for \$7,900 of the increase. What accounts for the rest?

INCREASE IN CHAR FORCE—UNIFORMS FOR GUARDS AND ELEVATOR
CONDUCTORS

Doctor WETMORE. An item of \$431 is due to a readjustment on our char force—our cleaning force. We had a man who had been on our staff for 40 years or more, a man of peculiar capability, who did most of the repair work on our many curtains and awnings and similar things, and also spent 3½ hours each evening in supervising the work of the charwomen. On his death last spring we found it impracticable to get another with his peculiar qualifications. We secured a mechanic to carry on the entire work of curtain and awning repair and certain other things the former man had been doing, but found it necessary to use one of the charwomen as a forewoman during the work of cleaning the buildings in the evening. This, with further necessity for some additional char service in the rest rooms, has made an increase of \$431.

The remainder of the increase of \$9,600 in this appropriation is included in an item of \$1,200 to provide uniforms for our guards and elevator conductors and of \$69 added to the amount allowed for purchase of additional supplies. Our guards should be in uniform for the information and protection of visitors, who can not now distinguish them easily from other persons in our halls. The salaries of these men are so low that we can not require them to purchase uniforms from their own resources.

In the memorandum submitted by Mr. Moore and Mr. Newton there is provision for a salary step-up in this same appropriation.

Mr. WOOD. How much?

Doctor WETMORE. \$19,436.66—making the total appropriation \$502,546.66 and the salary limitation \$484,116.66. I may say that the step-up given last year on this appropriation, which is the largest one for the National Museum, has had a most excellent effect in improving the morale of the staff. Our employees had been going along since 1924 with no change in salary until this increase went into effect on July 1 last. The promotions given have changed entirely the attitude of this group of employees toward their work. It has operated to speed up work considerably and has made possible the accomplishment of a great deal more with the available force. The effect was noticeable almost immediately in the amount accomplished.

REPAIRS OF BUILDINGS, SHOPS, ETC.

Mr. Wood. The next item:

For repairs of buildings, shops, and sheds, including all necessary labor and material, \$17,610, of which amount not to exceed \$10,360 may be expended for personal services in the District of Columbia.

There is an increase of four thousand dollars and odd.

Doctor WETMORE. This carries an increase of \$4,610. Of that amount there is \$1,680 estimated to allow for the hire of an additional painter. We now have one painter on this force, which has the care of repairs and renovation of all our buildings. In explaining this matter to the Bureau of the Budget I brought to their attention the fact that unless provision was made for further painting it would be necessary to come forward, in a comparatively short time, for a large special appropriation to cover the refinishing of our walls. The Natural History Building, which was completed in 1911, has had only a minor part of the walls repainted since that time. The other buildings, which are older, are in worse condition. We believe that by putting on another painter and having two men to work on that task we can get along fairly well for a period of several years at least.

Mr. Wood. You need this additional painter all the time?

Doctor WETMORE. Yes; we do. The work is such that the present force can not keep up with it.

Mr. Wood. What makes up the other item of this increase?

Doctor WETMORE. There is an item of \$930 for additional paints and other materials and an additional item of \$2,000 to replace parts of the cement roadways leading around the Natural History Building. These roadways are private and are under our maintenance. Last year there was allowed \$1,000, with which part of this work was done. I have here a diagram of the ground floor of this building, on which I have sketched the roadway on the east which leads to the service entrance where we receive coal and take out ashes; this is the most important roadway we have. In 1925 we replaced a section of this cement at a cost of \$1,345. This year I had a thousand dollars allotted for that purpose, with which we have replaced a portion 93 feet in length. What we contemplate doing with the additional funds estimated is to continue this work as far as possible toward the east entrance.

Doctor WETMORE. Our salary step up as indicated by Mr. Moore on this appropriation is estimated to amount to \$120, which would make the total appropriation \$17,730, and the salary limitation \$10,480.

PURCHASE OF BOOKS, PAMPHLETS, PERIODICALS, ETC.

Mr. WOOD. Now we come to the item:

For purchase of books, pamphlets, and periodicals for reference, \$2,000.

You ask for \$500 additional there.

Doctor WETMORE. By examining the appropriations for previous years, you will notice that up to 1925 this item carried \$2,000. For 1926 it was reduced to \$1,500 and has stood at that amount since. The cost of printing has increased tremendously; the cost of books, scientific books particularly, has gone up correspondingly. The sum of \$1,500 is all we now have available for the purchase of scientific works for the library of the National Museum for all the varied work that the curators carry on. We get a great many books and pamphlets through exchange for our own publications; but there are certain ones we must buy. The increase of \$500 will be applied to those purchases wholly necessary for our work.

POSTAGE STAMPS

Mr. WOOD. Next item is for the purchase of postage stamps and foreign postal cards, \$450. That remains the same?

Doctor WETMORE. No change.

NATIONAL GALLERY OF ART

Mr. WOOD. Now we come to the National Gallery of Art:

For the administration of the National Gallery of Art by the Smithsonian Institution, including compensation of necessary employees, purchase of books of reference and periodicals, traveling expenses, and necessary incidental expenses, \$30,356, of which amount not to exceed \$27,000 may be expended for personal services in the District of Columbia.

Doctor ABBOT. Mr. Chairman, they are asking the same as included in the Budget—the same as last year.

Mr. WOOD. Would there be any step up in that?

Mr. DORSEY. Eight hundred and twelve dollars, sir, step up on that, making the total appropriation \$31,168 and the salary limitation \$27,812.

Doctor ABBOT. Not this year, Mr. Chairman; but, perhaps, next year we shall ask for another small item, which is rather interesting. I think, if you will permit me, I will tell about it. A gentleman by the name of Ranger died some years ago and left to the National Academy of Design, in New York, his fortune for the purchase of art works, to be assigned by the national academy to public art galleries in different quarters of the country. Some of them have come here. The provision is that at any time between 10 and 15 years after the death of the artist, the National Gallery could recall any particular painting of those Ranger paintings which it desired, no matter where it was—wherever it might be, Boston, San Francisco, or the like—for the National Gallery. There have been 66 of those Ranger paintings obtained; and of those, three are in the National Gallery, assigned by this committee I speak of. It is hoped

by the committee on the gallery to bring all of those 66 Ranger paintings together in a year or two, compare them, and see which of them the National Gallery will eventually wish to procure. It costs something like \$1,000 for the transportation, taking out insurance, and the like, so that it is likely in another year we shall ask an appropriation of a thousand dollars for that purpose—not for this year.

Mr. WOOD. You are just giving us forewarning?

Doctor ABBOT. Yes, sir. I think it is a very remarkable will and very interesting.

PRINTING AND BINDING

Mr. WOOD. The next item reads as follows:

For all printing and binding for the Smithsonian Institution, including all of its bureaus, offices, institutions, and services located in Washington, D. C., and elsewhere, \$90,000, of which not to exceed \$7,000 shall be available for printing the report of the American Historical Association: *Provided*, That the expenditure of this sum shall not be restricted to a pro rata amount in any period of the fiscal year.

Doctor ABBOT. In that, as has been suggested by Mr. Moore and Mr. Newton, we are asking \$100,000 instead of \$90,000, which was allowed by the Budget and for the purpose of bringing up the publications of the Bureau of Ethnology and the National Museum as stated.

Mr. WOOD. If that is allowed, that entire amount will be used for the purposes designated by these gentlemen and by yourself, for printing and binding alone?

Doctor ABBOT. Yes, sir.

Mr. WOOD. And bringing up your publications current?

Doctor ABBOT. Yes, sir.

Mr. WOOD. And this will do it, too, will it?

Doctor ABBOT. It will help very materially toward that end, sir.

Mr. WOOD. That seems to me the end of the Smithsonian Institution, so far as we are concerned for the present. We are very much obliged to you for the very interesting hearing.

MONDAY, DECEMBER 12, 1927.

UNITED STATES VETERANS' BUREAU

STATEMENTS OF GEN. FRANK T. HINES, DIRECTOR, AND S. M. MOORE, JR., BUDGET OFFICER

ESTIMATES FOR 1929

Mr. WOOD. This morning we take up the estimates for the Veterans' Bureau. General, have you any statement that you want to give us before we take up the items in the bill?

General HINES. Mr. Chairman and gentlemen of the committee, I have turned over to the clerk a folder similar to the one that I have before me, which I have prepared for the committee. It has all of the tables to which I will make reference as I go along. I would





