





INDEPENDENT OFFICES APPROPRIATION BILL, 1924

HEARING

BEFORE

SUBCOMMITTEE OF HOUSE COMMITTEE ON APPROPRIATIONS

CONSISTING OF

MESSRS. WILLIAM R. WOOD (CHAIRMAN), EDWARD H. WASON,
L. J. DICKINSON, THOMAS W. HARRISON (CEASED TO
BE A MEMBER OF THE HOUSE OF REPRESENTATIVES ON DECEMBER 15, 1922),
AND ANTHONY J. GRIFFIN

IN CHARGE OF THE

INDEPENDENT OFFICES APPROPRIATION BILL FOR 1924

SATURDAY, DECEMBER 16, 1922.

SMITHSONIAN INSTITUTION.

STATEMENTS OF DR. CHARLES D. WALCOTT, SECRETARY; DR. C. G. ABBOTT, ASSISTANT SECRETARY; MR. W. DE C. RAVENEL, ADMINISTRATIVE ASSISTANT; DR. J. WALTER FEWKES, CHIEF BUREAU OF AMERICAN ETHNOLOGY; AND DR. WILLIAM H. HOLMES, DIRECTOR NATIONAL GALLERY OF ARTS.

Mr. Wood. Doctor Walcott, we are ready to hear from the Smithsonian Institution.

Doctor WALCOTT. Mr. Chairman, I have requested the heads of the different divisions to come before the committee, as they can give a more intimate explanation of the whys and wherefores with regard to the appropriations than I can. I should like to ask them to present their views and explanations, and, if I may, from time to time I may perhaps make some suggestions.

INTERNATIONAL EXCHANGES.

Mr. Wood. The first item is for the system of international exchanges between the United States and foreign countries. For 1923 you have \$45,000, and you estimate \$40,000 for 1924. If you have any statement to make with reference to this appropriation, we will be glad to hear from you.

Doctor ABBOT. Mr. Chairman, the exchanges have now been resumed with all the countries in the world that exchanged before the war except Russia and Turkey, and, in general, the business has resumed much the character it had before the war. The accumulations of boxes and packages which came about during the war have mainly been distributed now with the exception of those to Russia and Turkey. We have communicated on several occasions with the State Department in regard to the resumption of relations with Russia, but objection has so far been taken by the State Department, and the conditions in Turkey are so upset at present it is not practicable to have exchanges there. With the distribution of this material which has accumulated, some reduction in the expense of the service was possible, although the costs of carrying on the service are still, as far as they concern the freight and other large items, other than salaries, about 100 per cent higher than they were before the war. Salaries, however, have remained practically constant, as you know, for a great many years, so that there is little change on that account. That item is about \$22,000, and therefore the differences which exist are mainly in the other items.

The institution estimated the cost of carrying on the exchanges for the year 1924 at \$43,000, but the Bureau of the Budget cut that to \$40,000; however, in view of the conditions we are not disposed to quarrel with that cut, although it may possibly work a hardship on the exchanges. We think we may be able to get through with the \$40,000 which the Bureau of the Budget allowed. Almost three-fourths of the business of the exchanges, as you probably know, Mr. Chairman, is in connection with the Government itself; that is,

carrying forward the exchanges of Government publications between this country and the countries abroad.

NATURE OF EXCHANGES.

Mr. WOOD. What are these exchanges, Doctor Abbot?

Doctor ABBOT. One of the items is the exchange of the Congressional Record for records of other similar bodies outside. There are 44 sets of that, and then 95 complete sets of the Government publications are exchanged to different parts of the world. There is a great deal of business that is done for the Library of Congress.

Mr. WOOD. What is the net result to the United States? Do you derive any considerable benefit from these exchanges?

Doctor ABBOT. The information, I have no doubt, is of much use to you personally in connection with the publications of foreign countries.

Mr. WOOD. It would not be much use to me, and I do not suppose the Congressional Record of the United States would be of much use to the average Turk.

Doctor ABBOT. We do not exchange with Turkey now or with Russia.

Mr. WOOD. I am only speaking of those countries as illustrations, and we might take Germany or any other country. I sometimes wonder whether or not we are not just throwing away a lot of money on a lot of waste paper.

Doctor ABBOT. Mr. Chairman, we have large dictionaries and large encyclopedias, and we have seldom occasion to read them as a whole, but every once in a while we are in need of particular items and they are indispensable to us.

Mr. WOOD. In other words, you think it is a pretty good idea to have a wagonload of chaff in order to get an occasional kernel of wheat.

Doctor ABBOT. Yes; because some persons want one of those kernels and another person wants another kernel. The exchanges are carried on under two acts of Congress, so that we have no choice in the matter but to take those things which the Government offers us for exchange. The Institution is simply a forwarding device for that purpose. Of course, the exchanges are not limited to Government business. There is also an exchange of scientific intelligence between the colleges and universities in all parts of the country with foreign countries.

Doctor WALCOTT. May I say, in this connection, that all these foreign publications that come in go to the Library of Congress, and as illustrating the use of them, during the past three years several Russians who have come to this country have come to me and asked, "Can't you start up the exchanges again? Our people want them." I had much the same idea that you expressed, and I said, "Well, who wants them?" and they said, "They are wanted by the intelligent men all over Russia, in our schools and universities. All of those men are not dead yet."

We had accumulated many tons of material, some of which was to go to Russia, but we have not been authorized to resume relations with them. Two very intelligent men came over here from the University of Moscow and I had a talk with them, and they then

asked, "Can we get the scientific and technical publications outside of the Government publications?" I said, "I presume so but we can not transmit them through the exchanges," and they said, "If there is an arrangement made to ship them to a committee in London can they be shipped over there?" I said, "That is up to the people who have them." As a result of that, a notice was put in Science, which goes to all the universities and technical institutions, and there were over 70,000 pounds of material of that kind sent to New York to the American committee, transmitted to London, and shipped into Russia, and they said that letters came back indicating that it was being made use of, and they were very thankful to get it. We have also had letters from the interior States such as Germany and the Balkan States, constantly urging the resumption of the exchanges. I asked one of the men who came over here from Poland, "What use do you make of the Congressional Record?" He said, "Our people who keep in touch with what is going on in the world read it and everything is abstracted bearing in any way on the relations of our State to the United States. We read it to get the current of public sentiment as expressed in the Congress."

Mr. WOOD. You can get along with \$40,000 for this purpose?

Doctor ABBOT. We will try to do so; yes, sir.

BUREAU OF AMERICAN ETHNOLOGY.

Mr. WOOD. The next item is for continuing ethnological researches among the American Indians and the natives of Hawaii, etc. The appropriation for 1923 is \$44,000 and you are asking \$40,000 for 1924.

Doctor FEWKES. I was cut down. I suppose you want me to speak upon the amount I was cut by the Bureau of the Budget?

Mr. WOOD. Yes; and if you have any suggestions to make how we can cut you a little more, we will be glad to hear them.

NATURE OF THE WORK OF THE BUREAU.

Doctor FEWKES. I do not think you can do that and preserve the work of the bureau. It would be suicidal.

EXCAVATION AND REPAIR OF INDIAN MOUNDS IN MESA VERDE NATIONAL PARK.

I might give you an idea of the work I am doing. For instance, we are working on the ethnology and archaeology of this country, and my special work has been on the excavation and repair of the ruins in the Mesa Verde National Park. Last summer I was there from May until September. There are something like 16 mounds in an area of a quarter of a mile square, and I have started in to excavate those mounds and to repair them in order that the visitors who come there can see the nature of the habitations and other objects of the aborigines of this continent. The Mesa Verde Park is an educational institution. We started in 1908 with 25 visitors and last year we had 4,000 visitors. I gave camp-fire talks in order that they might understand what all this meant. This is not a recreational, but an educational institution, and I have received constant letters in regard to it, and all those letters have been very favorable and everybody wants me to go on. I only have a few more years left of my life but I want to go on and I want to make that place where I am working so that one can see the conditions of these people at the time they were living.

Mr. WOOD. Have you some photographs of what you can see there?

Doctor FEWKES. Yes; and if you will allow, I will explain them to you. We dug out four mounds this year, and this is one of them [indicating]. This [indicating] is the way the mound looked when we started; a simple mound of stone and earth without a wall showing above ground. All the stones were dressed and cut and the mound covered with sagebrush. That was the appearance when I took hold of it. This [indicating] is the appearance of that same mound after I got through with it. I worked three months, and in place of a mound of earth I have developed there a building, and, what is more, have determined that it is something more than a simple habitation. It is a place where the Indians in those olden times had their ceremonies. I have discovered this summer, as I never found before, that these people were smokers. I have discovered 15 pipes in the bottom of one of their sacred rooms, and therefore I am calling this the Pipe Shrine House.

Mr. WOOD. Why did you denominate this the Pipe Shrine House?

Doctor FEWKES. Well, as I say, the naming of these ruins is one of the most difficult tasks I have. They tell the story of an old lady who was shown around one of our museums and shown the Ichthyosaurus, the Plesiosaurus, the Dinosaurs, the Titanosaurus, and all the other "sauruses," so that her mind was perfectly flabby, and then as she was going away she was asked, "What do you think of this?" and she said, "Well, I think they had those old animals in the olden times, because the Bible says there were many monsters in those days, but if you will allow I would like to ask you one question, How in the world did you find out the names of them?"

It is difficult to discover the name, but I found this out from the fact of these pipes being in there, objects which have never been found before on the mesa. I discovered that the priests in those olden days sat around a shrine in the middle of a subterranean room and smoked and made their offerings. Smoking, of course, was a ceremonial custom in those days and not a secular one, and they threw their pipes after they had used them into this shrine, and we came along and dug them up 20 feet below the ground.

Mr. WOOD. You found some of the pipes?

Doctor FEWKES. Yes, sir; I have 15 of them. Some of them have not been smoked and are perfectly virgin, but most of them show the marks of the smoke.

Mr. WOOD. What are they made of?

Doctor FEWKES. Clay ornamented, and one is of stone.

Mr. WOOD. How much excavation did you have to do in order to unearth this place. How far underground was it?

Doctor FEWKES. Twenty feet. I started in here [indicating] and found a wall and then found the corners.

Mr. WOOD. How did you know there was a house in there before you started?

Doctor FEWKES. That is a question tourists generally ask and I have an answer written out here. The ordinary questions that are asked by tourists are the following:

Name and location of ruin: Pipe Shrine House; Mesa Verde National Park, Colo.

Identification of builders: A group of agricultural Indians of normal size highly specialized by environment.

Nearest modern representatives: Pueblos of New Mexico and Hopi of Arizona.

Approximate age of building: Probably built about the thirteenth century of the Christian Era.

Have climatic conditions changed: The land surfaces show evidences of slow but gradual desiccation.

How did you know there was a building under this mound? Nearly every surface stone showed the marks of artificial shaping and had been dressed into a more or less cubical shape. Some distance under the surface the stones were aligned into walls.

Now, after I had dug out the building I made an approximate guess at a restoration, representing it as I thought it was somewhere about the twelfth or thirteenth century, and this is the result [indicating sketch]. This is more or less hypothetical, but from the data I have it is the best I could do.

Mr. WOOD. This is simply a picture of your imagination?

Doctor FEWKES. No; not wholly. It is largely derived from data. I have maps of the rooms, the distances and directions, etc., and then, of course, the walls as we found them were about 4 feet high. Evidently they had been about 7 feet high.

Mr. WOOD. Did you find anything of this turret?

Doctor FEWKES. Yes, sir; the base of it. The rest had fallen down and left the rocks around it. It was the place of the sun worship; that is where they observed the sun, and this lower place, where we found the pipes, is where they worshipped the earth.

Mr. WOOD. Did you find anything else in there except the pipes?

Doctor FEWKES. Yes; an idol, pottery, knives, and stone implements of various kinds.

Mr. WOOD. Are the knives made of stone or of metal?

Dr. FEWKES. Made of flint rock and very nicely made, with no handles. Now, that was one part of the work. You will remember that this ruin not only had to be dug out but also the land about it had to be graded. The fallen rocks had to be removed, and it is now graded so that a person can drive around it. Throughout the summer we had an average of 40 people a day there during the season.

Mr. WOOD. What are the dimensions of this building?

Doctor FEWKES. 50 feet 8 inches by 70 feet; rectangular. Some of the rooms were places for initiation and some were for storage. We found the remains of corn in jars in those rooms. In the north-east corner there was a shrine where they went to worship and to deposit their offerings.

Mr. WOOD. What indicated there was a shrine there?

Doctor FEWKES. There was a fragment of meteorite as large as your hand, and around it was about a cement sack full of waterworn rock, and one or two little idols. In this particular place down here [indicating], as you went out in front, there was a shrine, and in the middle of that sat a stone image of a mountain lion surrounded by a number of other objects. The Americans have a habit of taking a thing and putting it in their pockets and forgetting until they get home that it belongs to the Government, so I have covered this with a netting and with a roof so as to shed the water. This [indicating] is the shrine of the mountain lion on the south side. The building is oriented exactly at the cardinal points by observation of the sun at the autumnal and vernal equinoxes. This is the room where we found the pipes right in that shrine there on the floor 20 feet deep and here are the bases of the tower and here you have embodied the worship these people had. The tower for the worship of the sun, which is male always, and the shrine for the worship of the earth,

which is female always—mother earth and father sky—and this building was like a church or a mosque for worship of that kind. This is one aspect of the work. It cost me \$2,000 to excavate this mound outside of my salary, and I think I did it remarkably cheap; in fact, everybody who came there said they did not think they could do it any cheaper.

Mr. WOOD. They did not charge you Washington prices for excavating.

Doctor FEWKES. I paid \$3 a day for laborers and \$7 for masons. I had 2 masons and 15 diggers, and one or two college students who came there, and I taught them a good deal more than they learned in college.

Mr. WOOD. How long did it take you to do this?

Doctor FEWKES. Two months. This was only one part of the work. Then I had two other mounds; one I am calling the Megalithic Home because the walls are made of large stones set on edge. That is a small one, and then there was another one which was a tower pure and simple. I have a picture of that here also [indicating]. This was nothing but a pile of stone when I took charge of it and I have opened it up and have topped all these buildings with cement grout in order to keep the water out, because the water penetrating it will throw down the walls.

Mr. WOOD. What would be the result of the atmospheric influence on that building that you excavated there after having been covered so long?

Doctor FEWKES. Destructive. I have covered its walls with cement.

Mr. WOOD. Did they use cement in those days?

Doctor FEWKES. No, sir; that is why I put it on. They used mud or adobe, but every foot of that is now covered with cement, and it took about 20 tons to cover them. That is, four tons of cement and the sand and so on in proportion.

Mr. WOOD. How near the original is the building we see before us, or did you build that up to conform with what you thought it looked like at some time?

Doctor FEWKES. No; that is exactly as it was found. I put this cement on top. It has a layer of cement to keep the water out and now and then when there was a little break I put in a rock or so, but I put it in condition so that it would shed water. Of course, some water will perhaps get in, but the only other way would be to build a building over it and I did not have enough money to do that.

Now, what I want is \$4,000 more. The Budget people cut me down \$6,000, and I want \$4,000 back, because I want to go on with this work. I think it is a thing of practical value.

Mr. WOOD. What have you got to do to it in addition to what you have already done?

Doctor FEWKES. That is only 1 of 16 mounds, and I want to excavate another one of those mounds, and I want it so that when the visitors come up there they can see the buried buildings, and I want to have corn planted there, so you can see the condition of Indian habitations before the white people came, and I think it will be a grand, good thing, and will attract many visitors. It is now becoming known, and archaeologists are going there as a kind of Mecca and learning something about the cliff dwellers, and tourists

are coming in great numbers. There were 25 tourists the first year we began and there were 4,500 this last year. It is educational, and the people of Colorado want it and everybody else wants it. Anybody who once sees it never neglects to come and see it again.

Mr. WOOD. Have you any idea about what the result of the next excavation will be?

Doctor FEWKES. It is more or less of a gamble but it will be something larger than this. I have already in mind the mound I want to work on. No one can tell because we are dealing with unknown facts and things we do not know about.

Mr. WOOD. You might not find anything.

Doctor FEWKES. We will find walls. We always have found something. I go on the principle of finding things when I go out there. That is what I go for. This is only one part of my work. I have others which I will be glad to explain.

Mr. WOOD. You have an appropriation of \$40,000, and you think you can not get through with that amount. Maybe excavating will be a little cheaper out there next year.

Doctor FEWKES. I do not think so. I want \$44,000. I want to work this thing out so that it will be an honor to the bureau, to the Smithsonian Institution, to the Government, and to everybody concerned.

Mr. WOOD. What additional work are you doing?

INDIAN MUSIC.

Doctor FEWKES. Our next work is the study of Indian music. Of course, the Bureau of Ethnology is studying the Indian in all his aspects. We are studying their languages, their sociology, their music, and their religions. For instance, take Indian music. I am spending \$2,000 in the study of Indian music.

Mr. WOOD. I was never much impressed with their music.

Doctor FEWKES. We used to think that the music of the Indian was nothing more than war cries, but now we are discovering that they have a music, and that music is valuable for use in writing American operas. There is hardly a day that passes that we do not get a letter from somebody who is interested in our study of Indian music. Here is a lot of letters that I have received lately, when the news got abroad that Indian music was to be cut down. Of course, we must cut somewhere. These are letters that we have received in relation to that matter, many being from publishers of music.

Mr. WOOD. Do you mean to say that the ancient Indian music has any direct connection with present grand opera?

Doctor FEWKES. I mean to say that you can take Indian music, and you have in it the material from which to create an American music that is different from the old music.

Mr. WOOD. Do you think it would be better to do that?

Doctor FEWKES. I certainly think so. I think it would be a great mistake not to do it.

LOCATIONS OF ETHNOLOGICAL OBSERVATIONS.

Doctor WALCOTT. The doctor has been discussing these special investigations of Indian ruins, which is his individual work. There are also scientific men connected with the bureau, however, who are

carrying on investigations pertaining to living Indians and their languages, customs, habits, religion, etc. The results of those investigations are published in the annual reports. I can only judge of them by the demands for the publications. There is a steady and constant demand for the publications. This work of Doctor Fewkes is very popular. As you know, we have all over the West the cliff dwellings and other traces of these Indian people, as in northern Arizona, for instance. There are private excavations going on, and the difficulty with the private excavations is that they simply go after the curious things. They take the relics that they can find, and in doing so pull down and destroy the whole thing. They get the relics and curious things and carry them to their museums. If that is allowed to go on, shortly there will be no permanent record left. Many of our citizens are interested in these things, or in these old relics and ruins, because that is all we know of the people who settled this continent before the Indian came.

We have mounds in Indiana and Ohio, and the whole subject of the ethnology of the Indian, not only in the United States but in Mexico and in South America, is interwoven. Down in Yucatan, the scene of the Mayas civilization, there have been some interesting discoveries. The Carnegie Institution of Washington is spending down there annually as much as all the appropriations we have for all of this work under the Government. They are spending that money in excavations and studies.

Mr. WOOD. How far north have those mounds been discovered?

Doctor FEWKES. They have been found in Ohio and as far north as Wisconsin. This particular kind of mound is found in the latitude of Salt Lake, but peters out on that horizon.

Doctor WALCOTT. I imagine that the Indians could not live permanently very far north with the means of protection that they had.

Mr. WOOD. I suspect, Doctor, that your discovery there, instead of being a smokehouse, was a summer resort. Undoubtedly there were larger settlements in South America than have been found throughout the North. They must have been a great deal scarcer up North, and I suspect that these Indians from the South made pilgrimages to the northern country during the summertime. The great body of them seem to have been in South America, down near the Tropics.

Doctor WALCOTT. I do not think they moved as far as that. The record seems to indicate now that a great deal of this earlier biological population came from the North and Northwest. Whether they came across from Siberia is a question that has not been thoroughly worked out, but there appears to have been wave after wave of immigration coming in, and as the people became settled and more domesticated and took up agriculture, those hardy tribes from the North drove them out. They were finally driven to the mesas, where they tried to protect themselves for a few generations, or for, say, 200 years, until they were finally entirely extinguished. During that period these people were settled there and cultivated the ground and lived out their existence in that way. Those are the only things left of them. They had no documents or historical records, and this is all that is left from which to interpret those Indians.

Mr. WOOD. They have found in some places inscriptions on stones, have they not?

Doctor WALCOTT. Down in Yucatan they have, but it seems that they never reached that degree in the North.

INTERNATIONAL CATALOGUE OF SCIENTIFIC LITERATURE.

Mr. WOOD. For the International Catalogue of Scientific Literature, your current appropriation is \$7,500, and you ask the same amount for 1924.

PUBLICATION OF CATALOGUE.

Doctor GUNNELL. The appropriation this year is the same as it has been for a number of years, and we ask the same amount for 1924. The character of the work is identical with what it has been heretofore. It is an international affair which in former times, prior to the war, was participated in by all the nations. There were 33 regional bureaus before the war, but the war conditions have made publication conditions almost impossible. There are regional bureaus all over the world, with the exception of Germany, Russia, and Holland, and possibly Belgium. They are still working. An international convention met at Brussels last fall at which it was decided to keep on with the work. We are going on in this country until the publication can be resumed, which depends upon the restoration of normal conditions. The cost of printing in England, where the catalogue is published, is about four times what it was in pre-war times. The cost is greater there than in this country.

Mr. WOOD. You ask the same appropriation?

Doctor GUNNELL. Yes, sir. As I have said, this is an international affair in which there are 33 of the great countries taking part. The central bureau, which is the publishing bureau, is in London. Each country agrees to furnish the proof or the material for publication, and that is being done. We have never done any of the printing in this country, the material is sent to London, where it is printed and the volume sold at cost. The central bureau in London never made any profit, but just before the war their expenses and receipts about balanced. Now publication expenses are so great that they have to hold the manuscript until times become more normal.

Doctor WALCOTT. All of this information that is put in our catalogue is upon cards and is so arranged that it is easily accessible. We had an inquiry last summer from one of our large manufacturers of drugs and medicines at Philadelphia. He wanted to know about colloids, and I got interested in it. I wrote back to him that we had some information on the subject, and he consulted the international catalogue. He had an expert who was keeping track of all the literature on the subject. We sent him 14 volumes of the chemical catalogue in which colloids were referred to. He wrote back that they were very valuable, and that they had given him access to material that he had not heard of. They ran back for 20 years. He asked to be allowed to keep the volumes until he could copy the extracts from them. That is simply an illustration. The chemical volume contains references to all the literature in chemistry that is published each year in the United States. In London they bring together the catalogues from every civilized nation and publish them. Those catalogues are compiled and appear in those volumes. We hope that next year they will get back on their feet and take up the publication of the volumes.

ASTROPHYSICAL OBSERVATORY.

Mr. WOOD. The next item is for the Astrophysical Observatory. Your current appropriation is \$15,500, and your estimate for 1924 is \$15,500.

STUDY OF THE VARIATIONAL TENDENCY OF SOLAR RADIATION.

Doctor ABBOT. We were allowed by the Budget Bureau the same amount as our last year's appropriation, or \$15,500. This appropriation is not sufficient for the work, and we have had to supplement it by private funds from the Smithsonian Institution; however, we are thankful to get this much for the purpose. The work that is being done is a study of the variations of the sun. The sun does not seem to radiate a constant amount of heat and light from day to day, but there are fluctuations, and those fluctuations are of a character that influences the temperature, the rainfall, and the cloudiness of the world. The results that we are obtaining from the Smithsonian station in Chile are actually being used. Those results are telegraphed over to Buenos Aires every day, and they are actually using those results for forecasting purposes there.

They get out little bulletins with curves arranged for a week in advance, showing what the temperature in Buenos Aires will be, based upon our observations of the sun. Our bureau is very much interested in this, and we wished to have a more thorough study of this question made with more than one station operating. Therefore, we have put in two, one in Arizona and one in Chile, which cooperate in giving the intensity of the sun's heat every day, as far as it can be obtained from those stations. The two stations back up one another, so as to show the fluctuations in duplicate, so that if a mistake is made at one station it will be checked up in that way.

Mr. WOOD. You determine those fluctuations in Arizona by what means?

Doctor ABBOT. We have a means of measuring the sun's heat as a whole, and, also, as it is separated in the spectrum. It is not sufficient to measure it as a whole, because, due to atmospheric conditions, the different colored rays are differently affected. Therefore, we must spread it out in the spectrum, like the rainbow. Then, by taking observations in the morning when the sun shines through a long thickness of air, and later on as the thickness grows less, we are able to show what it would be on the outside where there is no air at all. It is this that we speak of as the fluctuation of the sun's heat, or the fluctuation of heat as it would be received upon the moon, for instance. This measurement requires a very delicate apparatus. You can hardly conceive of the sensitiveness of the apparatus that we use. We use the bolometer, which is an electrical thermometer so sensitive that in our ordinary practice you can measure changes of temperature to one-millionth of a degree. This last summer, in connection with other work of solar observation at Mount Wilson, Calif., I had a special bolometer apparatus so sensitive that it would measure one one-hundred millionth of a degree. That was a special piece of work that I had arranged to do at the Mount Wilson Observatory, but in ordinary everyday practice we make measurements down to one one-millionth of a degree.

It requires great experience and training to obtain the results in noting these changes in the sun that we find by this delicate means. For example, in March, 1920, there was a great sun-spot group that passed over the sun, being central on the 22d of March, and associated with it there was a great Northern Lights display. There were magnetic storms, and telegraph lines and other electrical instruments were put out of business. At that time the solar radiation of heat fell off 5 per cent, when this group of sun spots reached the center of the sun. That change of 5 per cent did not mean a change in the temperature in the same direction in every part of the world. The dependence of the temperature of the world upon changes in the sun is quite indirect, owing to the presence of mountains, oceans, deserts, and the like. What affects one region in one direction might affect another in the opposite direction. Perhaps that could be understood by considering these great cyclonic movements of the atmosphere which govern the winds. If you are in one region, the prevailing wind may be from the north, while if you are in another region, with relation to the whorl, the prevailing wind may be southerly. Then if the center of the motion moves off geographically a few hundred miles, you come to a new set of winds, and the former prevailing northerly winds may become southerly winds, and the temperature of that region will be raised thereby.

Therefore, you can not predict simply from measuring the intensity of the sun's heat what the changes in the weather are likely to be. It will be necessary to carry on those measurements for several years. By getting from the two stations a checking system of measurement, we lay the basis, as it were, which meteorologists the world over can use in finding out how the results can be used in forecasting meteorological conditions.

OTHER COUNTRIES INTERESTED.

Last May there was held in Rome a meeting of the International Astronomical Union, composed of men who were experts along the line of astronomical work and matters associated therewith, and in connection with the proceedings on the subject of the measurement of solar radiation, of which I am speaking to you now, the chairman, M. Deslandres, of France, made the following proposal:

It was resolved to request the general assembly of the union to authorize the following note to be sent to the Governments concerned, urging the importance of observations of solar radiation:

"The variations of the solar constant announced by Abbot in America are of far-reaching interest. It is desirable that this investigation should be organized also in other countries, and, so far as possible, with similar instruments, in order that the results may be easily compared. The variations of the total radiation of the sun, whether accidental or periodic, would thus be revealed with greater certainty, and it would then be possible to study their influence on the meteorological elements in different parts of the world."

The Government of Argentina has taken up this subject, but so far the Smithsonian is the only establishment in the world that is maintaining these observations. The Government of Argentina is now equipping one station, and they propose to equip a second one. A committee has been formed in Australia for the same purpose, and they are coming to us for information in regard to the instruments and equipment to be used for the purpose. It is receiving a great deal of attention in all the countries of the world, and we have con-

tinual requests for information with regard to the results of the work. That was true to such an extent that before the Volume IV of our Annals dealing with the subject was published this last spring I used frequently to have to make a typewritten copy of reports covering a long series of observations in order to satisfy the requests that were continually coming in.

As I have said, our appropriation for this year is \$15,500, and we are asking the same amount for next year. We have to supplement that by private funds from the Smithsonian Institution.

PRIMARY OBSERVATIONS MADE.

Mr. WASON. Did you originate the idea of making these observations?

Doctor ABBOT. I think you could better say that the late Professor Langley, former Secretary of the Smithsonian Institution, originated the idea. He was even making such measurements. He made them at Allegheny, Pa., at first, and then, finding it necessary to make them in a cloudless region, he organized his famous expedition to Mount Whitney, in California, where he made observations on this subject. After that, but little more was done for 20 years. Then, after the Astrophysical Observatory was established, and after it had been running for a number of years on other work, we took it up again. Since taking it up, we have invented many new instruments and many means of reducing the observations and have perfected the whole process, so that now it has become standardized. We are the only ones who are engaged in that kind of work.

NATIONAL MUSEUM.

CASES, FURNITURE, FIXTURES, ETC.

Mr. WOOD. The next item is for cases, furniture, fixtures, and appliances required for the exhibition and safekeeping of collections, at the National Museum. Your current appropriation for this purpose is \$20,000, and your estimate for 1924, is \$20,000.

Mr. RAVENEL. The annual need for additional exhibition and storage cases is to enable us to take care of the collections that are annually received. During the past year we received about 360,000 geological, zoological, and ethnological specimens, besides those in the arts and industries and mineral technology. Since 1915 the regular appropriation for this purpose was, until 1917, \$25,000. In 1917 it was reduced to \$15,000, because the Museum was practically closed, and it was not thought it would be necessary to provide the same amount, although we were getting collections just as we had in the past. Since that time the appropriation has been \$20,000, and \$20,000 provides practically about as much as \$15,000 normally did in the way of storage cases and other appliances.

Mr. WOOD. Do they cost twice as much as they formerly did?

Mr. RAVENEL. Not quite twice as much now, but they did year before last. Plate glass, for instance, has gone down. Quarter-inch plate glass, which is used exclusively in the exhibition cases, was as high as 92 cents a square foot, but it has gone down to 58 cents this year. However, the same fall is not indicated in the cost of paints and turpentine. The turpentine that we bought for years

under Government contract for 44 to 55 cents, is now costing \$1.25 under Government contract, and if bought in open market it will cost \$1.75. The same thing is true of practically every article that enters into construction. The reason we are able to get along as well as we do is because our carpenters are receiving the same pay to-day that they received 20 years ago, and they are transferred to other departments, or go out into private business, we have the utmost difficulty in filling their places. We listed for next year an additional cabinet-maker, but will have probably two less next year than we have this year. The reason we are constructing cases in the Museum carpenter shop is because we can do it for so much less than we could have it done on the outside. We expect to spend about \$5,000 of this appropriation for exhibition cases, \$11,300 for storage cases, \$1,500 for glass jars and vials, \$1,400 for paste-board boxes and trays, \$750 for laboratory equipment, and \$100 miscellaneous.

HEATING, LIGHTING, ETC.

Mr. WOOD. For heating, lighting, telegraphic and telephonic services, your estimate for 1924 is \$70,000, while your current appropriation for this purpose is \$73,000.

Mr. RAVENEL. The estimate is \$3,000 less than the appropriation for the current fiscal year. Last year we received \$3,000 for the purpose of putting in a hot-water heater.

Mr. WOOD. You put that in?

Mr. RAVENEL. Yes, sir; that is in now. We hope to make a slight saving in coal. We figure that that will make a difference of 150 tons per year; \$32,080 under this appropriation is for labor. That covers the salaries of 30 regular annual employees and 5 men employed for four months. The next is \$24,000 for coal and \$3,750 for electric current, which, of course, means the same thing. We will spend \$3,700 for electric current in the event we close down the plant in June, July, and August, as we did this year to save money. That makes a total of \$28,500 for coal, practically. The price of coal to-day is \$9.48 per ton, and as far as I can learn there is no possibility of the price being reduced.

Mr. WOOD. Where do you get the coal?

Mr. RAVENEL. Through the Government Fuel Yard that supplies all the Government bureaus. Last year our average price was \$7.55. We are paying \$2 more per ton than we paid last year. When this estimate was made up the price was \$6.22 per ton, and I reduced the allotment for coal, supposing that we could get coal certainly at the same price after the strike as we got it before, but I guessed wrong, and I am afraid we will have to ask for a small deficiency for coal.

Mr. WOOD. The weather has been very mild so far, and let us hope it will continue.

Mr. RAVENEL. Last year we got a deficiency of \$2,300, but turned all of it back, because we did not need it, due to the falling price from \$7.55 to \$6.22 per ton.

PRESERVATION, EXHIBITION, AND INCREASING OF COLLECTIONS.

Mr. WOOD. For continuing the preservation, exhibition, and increasing collections, etc., you are asking \$312,500. The current appropriation for this purpose is \$312,620.

Mr. RAVENEL. In submitting our estimates to the Budget Bureau we asked for \$322,620 instead of \$312,620, as the appropriation has been for a number of years. The extra \$10,000 was requested for the purpose of procuring additional specimens for filling up the gaps in our collections. A natural-history collection is simply a classified collection of biological standards used by the scientific staff in identifying specimens. It is used not only by the National Museum staff but by all departments of the Government and most of the universities of this country that teach natural history. The Museum is also visited by many foreign experts for the purpose of consulting our type collection. We have depended to a very great extent for the increase of our collections on the results of Government expeditions and expeditions sent out by corporations and private individuals. However, except in cases where the Institution sends the expeditions out, they are not sent out for the specific purpose of filling up gaps but for other purposes, and make collections incidentally. They turn over to us a great deal of valuable material, but the gaps are still there. We need specimens that are getting rarer every year and that are more and more difficult to get. We asked \$10,000 for that particular purpose. As an illustration of what I mean, I will say that we were offered six months ago a Copper Eskimo collection, probably the last one to be secured. It was collected by Steffanson and offered to us for \$5,000. He reported that since the advent of the white man the natives had practically ceased to make the things that they used before, and that a collection of that kind could probably never be made again.

We were obliged to turn it down, because we did not have the \$5,000. There are a good many other things that we might have secured in that way. For example, the Carnegie Museum, of Pittsburgh, has started the excavation of a dinosaur national monument and offered to turn it over to us, but the Museum was unable to consider it, although we need an example of that particular animal, because it would cost from five to ten thousand dollars to complete the excavation and would probably require six months' time.

To return to the regular appropriation of \$312,620, \$295,000 of that is for salaries, leaving \$17,000 for all other purposes in connection therewith, such as the buying of supplies, paying freight, etc.

ICE MACHINE.

I would like to call attention to just one more item that was submitted to the Bureau of the Budget, namely, an estimate for an ice machine. Eleven years ago we put in an ice machine, and during that period we have saved over \$11,000 for the Government by manufacturing our own ice.

That machine cost only \$2,650 and was paid for from a balance on the appropriation for the preservation of collections for 1910. As a business proposition this means that by spending \$7,500 for a new machine we can possibly save the Government \$1,000 a year in the purchase of ice for the Institution and its bureaus. That has been carefully figured upon the basis of the wholesale price of ice during 11 years, from 1911 to 1922. The plant broke down last summer, and the several bureaus had to buy ice in the open market. The original plant cost \$2,650 and was capable of producing 2 tons a day.

Mr. WOOD. If that plant cost only \$2,650, why should you want \$7,500 for another one?

Mr. RAVENEL. Because you can not now buy a \$2,650 plant. They are not worth anything at all. The plant suitable for this purpose would cost not less than \$7,500.

Mr. WOOD. Do you mean that you would buy the same kind of plant that you had before?

Mr. RAVENEL. It is probably a better plant. It provides for a slight increase in the amount of ice.

Mr. WOOD. The Budget Bureau did not think you needed it?

Mr. RAVENEL. The Budget Bureau seemed to be thoroughly satisfied, and I thought we had it, until I got a long-distance message at Atlantic City advising me that it had been cut out.

Mr. WOOD. What do you need ice for?

Mr. RAVENEL. We have fountains in the exhibition halls where visitors can get ice water.

Mr. WOOD. Do you need it for preservation purposes?

Mr. RAVENEL. No, sir; the ice is simply for the ordinary uses. It will cost us approximately \$2,400 a year.

Mr. WOOD. If you did not have any ice water there at all, they could wait until they got somewhere else. It would be a nice thing to have, of course, but nobody there would suffer if you did not have ice water.

Mr. RAVENEL. I believe it is necessary.

REPAIRS OF BUILDINGS, ETC.

Mr. WOOD. For repairs of buildings, shops, and sheds, including all necessary labor and material, you are asking \$10,000. That is the amount of the current appropriation.

Mr. RAVENEL. The appropriation of \$10,000 that has been made for a number of years has been sufficient for the ordinary and general repairs of the buildings, which repairs, as a rule, consist of painting, repairing the copper, tin, and slate roofs, and pointing and painting the ceilings and walls, repairing windows, skylights, etc. During the war, three or four years ago, some plaster fell from the ceiling of the dome of the Arts and Industries Building, which was finished in 1882. We had it examined, and there seemed to be no danger of any further falling, but on the 7th of August, 1922, a piece fell off as large as half of this table and 3 or 4 inches thick. As the dome is 80 feet high and 60 feet in diameter, it was impossible to make a thorough examination unless an expensive scaffold was built, so we sent a sample of the plaster to the Bureau of Standards and had it examined.

They reported that disintegration had set in due to too much sand, and that it was dangerous; also recommended that it be roped off at once and a new ceiling be put in. We also called on the Supervising Architect, who examined it and made a report, stating that he thought it could be done for \$3,500 or \$4,000. There was therefore nothing to do except to use this appropriation for that purpose, and to lay aside all other repairs until another year, dependent upon what this might cost. I wrote to the Budget Bureau, bearing in mind the law on the subject of deficiencies, and called their attention to this matter and stated that I was going ahead and make the repairs. Specifications were sent to all the prominent builders in Washington,

but no bids were received, so we finally decided to have the work done by the Fuller Construction Co., at cost plus 10 per cent, as they had done very satisfactory work for us in the same way before. I am in hopes that we will get through on less than any of the estimates that we had from outside sources or from the Supervising Architect's Office. Under the terms of the arrangement it is provided, as the scaffold will be of no value to us, that the cost of the serviceable material in it will be deducted from the bill. We hope to get through on possibly \$2,500, although it may go higher.

BOOKS, PAMPHLETS, ETC.

Mr. WOOD. The item for the purchase of books, pamphlets, etc., is the same as this year, or \$2,000?

Mr. RAVENEL. Yes, sir.

POSTAGE STAMPS AND POSTAL CARDS.

Mr. WOOD. And you ask the same amount, or \$500, for postage stamps and foreign postal cards.

Mr. RAVENEL. Yes, sir.

NATIONAL GALLERY OF ART.

Mr. WOOD. For the administration of the National Gallery of Art in the Smithsonian Institution, you are asking \$16,000. The current appropriation for this purpose is \$15,000.

Doctor HOLMES. That increase is largely because of the separate establishment of the National Gallery of Art Commission which requires additional expenses, especially for travel. At the same time I may tell you that the \$16,000 is certainly not an excessive amount on any account. I may tell you that the National Gallery of Art cares for what the people give it in the way of art works, and my duty is to keep these things in such shape that the people will give us more. The Smithsonian now has about \$10,000,000 of values received in the way of gifts and bequests of art works. I have under my charge in the National Gallery proper about \$3,000,000 in value of art works, and Congress has appropriated for that establishment about \$45,000 up to the present time—that is, \$15,000 in each of the three years that we have been established as a separate unit of the institution—so that the expenditures have not been at all equal to what might be expected with that amount of income in art material. We really need more money to put art in a shape where it will be entirely respectable in this country. We are behind all other countries in the development of art galleries.

The matter of a building or space for preserving those things is another question. We have borrowed from the Museum space in which to care for the \$3,000,000 worth of art works acquired in the last 10 years, and I trust you will give us half a chance to develop the National Gallery into a respectable institution.

PURCHASE OF BOOKS AND PERIODICALS.

Mr. WOOD. In this item you have some new language covering the purchase of necessary books and periodicals, but you do not designate

the character of books and periodicals, as required by the statute. That is required by the Statute of 1898. There should be some definite language here as to the character of books you wish to purchase, but you simply provide here for the purchase of necessary books and periodicals.

Doctor HOLMES. They are all art books. We want to start a library. Every other gallery in the world has a library.

Mr. WOOD. What do you want with a library in connection with those pictures? Is that essential?

Doctor HOLMES. Yes, sir; because in every one of the 20 different branches of art that come under the National Gallery of Art there should be works of reference. We are beginning what we expect to become in time a museum of the fine arts, covering the entire range of the arts of taste, pictures, sculptures, and all of the others. This will come in time. We have not been able as yet to segregate and use the many things the National Museum already has on hand.

Doctor WALCOTT. Take ceramics, textiles, and any of the arts, they will all come in under this. It is not only paintings which go to the national gallery, but art as applied to the industries. All of those things will come in. And it is necessary to have books of reference. If you do not have books of reference to keep up with the literature on this, the people can not keep posted as to them, as to what is going on. They are books for the students.

Mr. WOOD. They are used by the student or the visitor?

Doctor WALCOTT. Anybody can use them.

Mr. WOOD. But, Doctor Walcott, we have a statute that requires, before making an appropriation for books of this character, that they must distinctly designate the character of the books.

Doctor WALCOTT. I am not acquainted with that, Mr. Chairman.

Mr. WOOD. It is the act of 1898.

Doctor HOLMES. All of the books we are getting relate to the arts distinctly.

Doctor WALCOTT. Would "books of reference" cover it?

Doctor WOOD. Yes.

Doctor WALCOTT. Purchase of necessary books of reference?

Mr. WOOD. Yes; that would cover it. The act says:

Purchase of books or periodicals from appropriations: Hereafter law books, books of reference, and periodicals for use of any executive department, or other Government establishment not under an executive department, at the seat of government, shall not be purchased or paid for from any appropriation made for contingent expenses or for any specific or general purpose, unless such purchase is authorized and payment therefor specifically provided in the law granting the appropriation.

It says, "Hereafter, law books, books of reference and periodicals for use of any executive department." Now, if these are to be books of reference—

Doctor WALCOTT. If we simply put after the word "books" the words "of reference," that would cover it.

Doctor HOLMES. They are books of reference; they are books required in the gallery.

Mr. WOOD. Well "purchase of necessary books of reference."

Mr. WASON. Would that include periodicals?

Mr. WOOD. It says, "hereafter law books, books of reference, and periodicals for use," etc. If I inserted that, I would say, "for

the purchase of the necessary books of reference and periodicals of reference, or necessary books of reference and periodicals, or necessary books and periodicals.”

Doctor WALCOTT. Any way, just so you cover it.

Mr. WOOD. Just so you get the books; is that it?

ARTS INDUSTRIES MUSEUM.

Doctor WALCOTT. Yes, sir. Mr. Chairman, may I now say a word before concluding the hearing. Mr. Dickinson spoke about the future development of the museums. I have here a small diagram of the Smithsonian grounds. Under the law of 1846, a certain part of this square was dedicated for the purposes of the Smithsonian; that is, the southwest one-quarter, and on that we now have the Smithsonian Institution, the Freer Gallery, and the Aircrafts Building, all of which are one under the control of the Board of Regents.

The Natural History Museum, this square or oblong building on the north side of the square, was located there by special act of Congress. When Mr. Freer made his offer of \$500,000 and then increased it to \$1,000,000 and then to \$1,200,000 for the erection of a building for the inclusion of his collections of oriental art and American art, the regents had a site which could be utilized. Now, I have recently told parties who have large collections, “We can not take them, we have no room.” We have art collections in the National History Museum and scattered around in the various buildings, wherever they could be placed. We have also great historical collections, especially of American history, going back to colonial times and coming down to the recent World War. If you go through the buildings you will find these scattered all about the Natural History Building and through the old red brick buildings called the Industrial Museum. They are classified as best they may be under the circumstances.

There is a strong movement among the engineering societies of the United States, having over 40,000 members and represented by the Engineering Foundation of New York, to have an engineering museum, or an industrial arts museum. There are such museums in Germany, France, and England. We have in the National Museum to-day some 30,000 objects that are scattered through that old red brick building pertaining to engineering.

The engineers sent a committee to examine what we have here, as they have the question up of raising funds for the erection of an engineering museum, and getting something for its endowment, either in Washington, New York, Pittsburgh, Chicago, or elsewhere in the United States. The general feeling is, so far as I have been able to learn, that it is better to have it in Washington; that it would then be a national affair in connection with the National Museum system here. Such a museum would be of the greatest national importance, because it would not only show the development of our industries and the development of American engineering and all matters connected therewith, but it would be brought down to date and kept as a continuing matter and be of great service for reference and for the education of the young engineers and the public.

Now, I do not know what these people are willing to do, but if they come back, as they may, in the course of the winter, and say we are prepared; where can you place a museum. What can you do for us?

We can only reply we have no authority at all now; we have no ground left on which the Smithsonian can place such a museum.

There are private individuals of large means that have spoken also of giving funds, as Mr. Freer did, for buildings. Now, the collections for an arts and history museum, as Doctor Holmes has said, are scattered to-day through three large buildings. The collections should be gathered in one building which, if it is done, will give us an arts and industries building which would be of great educational value and it would be one of the great centers for such things in the United States.

Such an additional building would enable us to use the old red building for collections in industries outside of engineering, and they should be gathered there, because we have very large collections. In other words, we could then develop systematically the industrial engineering, arts and history, and natural history museum collections.

When discussing these matters a few days since there was a suggestion made—I do not know that it is practicable—that authority be given to the Regents of the Smithsonian Institution to go ahead and prepare plans and, if those plans are approved by the Fine Arts Commission and the Institution obtains the money other than by appropriations by Congress and the Government was not involved in expenditure of funds, that permission be granted by the Congress to put up a building between Seventh Street and the National Museum. To carry into effect such a suggestion we have drawn up an amendment giving such authority to the Regents. It may be subject to a point of order on the floor; you can tell better than I can about that, and also whether it would be worth considering.

The Regents of the Smithsonian Institution are authorized to prepare preliminary plans, to be approved by the Commission of Fine Arts, for a suitable fireproof building with granite fronts for the National Gallery of Art, including the National Portrait Gallery and the history collections of the United States National Museum, said building to be erected when funds from gift or otherwise, except those provided by appropriation, are in the possession of the said Regents, in sections or completely, on the north side of the Smithsonian Park, between the Natural History Building, United States National Museum, and Seventh Street.

Mr. WOOD. That, of course, would be legislation and would be subject to a point of order.

Doctor WALCOTT. It is a question I have discussed somewhat in years past with Members of the House and Senate, whether an additional building for the United States National Museum is a continuing operation or a new thing. This would be a third building for the Museum.

Mr. WOOD. I do not know what the original act was with reference to the erection of buildings there, but it strikes me, unless there is something in the original legislation, it is new legislation.

Doctor WALCOTT. The last act for the Arts and Industries Building, National Museum, provided:

“For a fireproof building for the use of the National Museum, 300 feet square,” etc., and appropriating \$250,000 for it, “in accordance with the plans now on file with the Joint Committee on Public Buildings and Grounds.”

When the next building was authorized, the Natural History Building of the National Museum, and when an appropriation was made it was placed under the head of appropriations for the Smithsonian Institution and so carried.

Mr. WOOD. Was it put on in the House or Senate?

Doctor WALCOTT. I do not recall. Do you know, Mr. Dorsey, whether that was put on in the House?

Mr. DORSEY. It was a Senate amendment.

Doctor WALCOTT. The original authority?

Mr. DORSEY. The original authority was a Senate amendment; yes, sir.

Doctor WALCOTT. It read:

For the preparation, under the direction of the Secretary of the Smithsonian Institution, of preliminary plans for an additional fireproof, steel-frame, brick and terra-cotta building.

And so forth, \$5,000. That was carried in the act of March 3, 1903. However, the appropriation for that building was carried in the Smithsonian's items, and that was put in by the House committee, for building the National Museum,

To enable the Regents of the Smithsonian Institution to commence the erection of a suitable fireproof building with granite fronts.

And so forth. That was carried in the appropriation for the Smithsonian Institution.

Mr. WOOD. That sort of amendment could be put on in the Senate, but it could not be put on in the House.

Doctor WALCOTT. The original amendment was put on in the Senate, and then was concurred in by the House authorizing the preparation of plans; but this second part there, "authorizing and enabling the regents of the Smithsonian Institution to erect a building" was put on in the House, I believe, and that carried the appropriation for carrying out what had already been authorized.

I bring it to the attention of the committee at this time because we are up against a condition—

Mr. WOOD. What objection would there be to introducing a bill granting this authority, by doing it directly, except the length of time necessary to do it?

Doctor WALCOTT. Any way to get it is all I am interested in, for the development of the museum.

Mr. WOOD. Of course, we would not be authorized here, and would not be justified, to put this on in the House; but if it was put on in the Senate and the Senate agreed to it, we could then refer it back to the House, and if the House agreed to it, then it would be all right; but it would be legislation, pure and simple, in this bill.

Doctor WALCOTT. What I wish to do is to put this in the hearings.

Mr. WOOD. Yes. In the event that building should be authorized, it would be built without cost to the United States Government?

Doctor WALCOTT. That is what I was intending to say, just the same as in the case of the Freer Building.

Mr. WOOD. I would like to see it done. Now you have a printing item here.

PRINTING AND BINDING.

Doctor WALCOTT. There are various printing items there, Mr. Chairman.

Mr. WOOD. Can you tell us about that? You have some new language in here:

For printing and binding for the Smithsonian Institution, including all of its bureaus, offices, institutions, and services, located in Washington, D. C., and elsewhere.

Doctor WALCOTT. Is not that now in the act, and the Budget has combined them all in one item? They have cut out all of the original items.

Mr. WOOD. The total estimate here for printing and binding amounts to \$60,000. Did that sum of \$77,400 which you had in 1923, represent what is now combined in this one item, all together?

Doctor WALCOTT. Yes, sir. Mr. Chairman, the estimate which we sent in was \$98,400. That includes all of our publications.

Mr. WOOD. The Budget cut you down to \$60,000?

Doctor WALCOTT. The Budget cut us down to \$60,000. This is the only means we have of diffusing the knowledge we have. For instance, take our estimate for the Smithsonian annual report, with which I think you are all acquainted. The estimate for the 1919 report was \$9,500, from the Government Printing Office, and it cost \$12,120 when it came to be printed. The estimate for the 1920 report was \$10,000, and it cost \$12,249.91 when it came to be printed. And, if you will recall, there was an increase in the appropriation in 1922, up to \$20,000—an increase of \$10,000 over the usual appropriation—in order to take care of those extra costs that had accumulated during the war period. This is for the annual report of the Smithsonian. Under this pro rata cut it has been reduced to about \$8,000. We publish 10,000 copies for the Institution, and the Congress has had its copies. Now, that report has been coming out for 75 years, under the original authority, and there has always been an appendix, and they are distributed throughout the world. These 10,000 copies that are printed, within a short time after they are ready, are taken up, not by harum-scarum distribution, but by applications from people who wish them, and there are also quite a large number, I believe, distributed by Congress. We find the congressional allotment disappears very quickly, and we have many, many applications coming from Congress to send them to people who have applied for the work.

To reduce the size of the work so as to bring it down to this \$8,000, under the existing costs, would necessitate omitting certain lines of activity which would leave this volume an incomplete work. What we do, in preparing that volume, is to send out letters to groups of men who are specialists in various lines, in particular activities, asking them what, in their judgment, is the best paper, among articles printed during the year, bearing on their particular subject which would be of popular interest and valuable for use in the colleges, high schools, etc. Here are a group of those papers from the report which has just been printed, the report for 1920. They cover a wide range of subjects. Here is one on "Soil acidity, its nature, measurement, and relation to plant distribution," and so on.

When the recommendations of the various groups of specialists come in they are gone over by a special committee, and, no matter what the language may be or where it may have been published, in any part of the world, we try to bring together a group of the papers with the latest information and written in such a way as to be understood by the average intelligent man. These are made into volumes and then, in order to avoid the waste of material, there are some 500 copies of each article printed in this way [indicating] to send to people who write for information on special subjects.

I asked our document division if they had any letters relating to these reports, and here is one from the principal of the Haven Consolidated Schools, Haven, Kans:

I would like for you to send me your annual reports for the years 1920 and 1921. I wish to use them for reference work in my classes, and will make good use of them if obtained. They contain a valuable store of information and knowledge which we need in our classrooms.

Here is another from Ralph Schroder, Milwaukee, Wis.:

I can not resist the desire to thank you for favoring me with a copy of the Annual Report for 1920, and to express my appreciation of its excellence. Though the reports are always interesting, I feel that your new one for 1920 contains the most remarkable collection of material so far compiled in any single volume.

And here is one from Edmund Noble, Boston Herald, Boston, Mass.:

I thank you very much for the copy of the institution's latest report received a few days ago. Permit me to congratulate you on its rich array of important as well as valuable articles, also generally on the increasing appeal which the report is making to public interest. It is a great intellectual treat to have a work into which so much expert knowledge has gone and on which so much care has been lavished. With best wishes for it and for yourself—

Those are simply three examples of letters that the custodian had.

Now, the institution receives in addition to the 9,750 bound copies, which are distributed largely to the libraries and educational institutions, the various papers comprising the appendices which are printed separately, as I have already mentioned to you. We find those are taken up by newspaper syndicate men, newspaper writers, and others, and in that way the information contained obtains a very large circulation throughout the United States. We get the clippings back, and they always refer to them as data in the Smithsonian report. I do not know of any better way of distributing to the American people the most recent scientific knowledge in regard to these subjects in a form which they can read and digest, so that we are very sorry the Budget has cut that down, because we really need that appropriation—the costs of publication have gone up so.

Mr. WOOD. They are down a little now, are they not; is not paper down?

Doctor WALCOTT. Only a trifle. Paper is down, but labor is the thing that costs.

Mr. RAVENEL. The last bills we have gotten show the rising prices we will have to pay for everything. Binding has gone up from \$2.80 to \$3.28 per volume.

Doctor WALCOTT. Binding has nearly doubled in the last three years.

Mr. DICKINSON. Put in a couple of those items you have there.

Mr. RAVENEL. Last year I called attention of the Public Printer to the fact that one paper we had put in had been estimated to cost \$757. It is Museum requisition No. 2853. The revised estimate was submitted at the end of June showing it would cost \$1,110.42. The job was actually billed to the museum during the months of July and August at \$1,444.33—exactly double what it was estimated to cost in the first instance. Now, the explanation was that the man had made a mistake in his estimate, and I understand he was removed.

Another pamphlet of almost the same size that was estimated to cost \$695, did cost very nearly \$700, but that came out first.

Doctor WALCOTT. Mr. Chairman, as I say, the Budget has given us \$60,000. Last year you gave us \$77,400. We did not get through with that, what we had up to that time, owing to the excessive costs and conditions. Now, it simply means the cutting down of the publication of the material which is available, and, as a result, of the operations of the institution; that is all.

Mr. RAVENEL. May I say just a word?

Doctor WALCOTT. Certainly.

Mr. RAVENEL. Under this item, the museum is cut from \$37,500 to \$29,000. We had to get an additional appropriation two years ago to catch up, and we thought the additional appropriation of \$26,525, which the Public Printer said would clear us up to date, would do, but it did not bring us up to date. But with the \$37,500 a year we can publish everything of importance. We have to cut out binding. We used to bind from 1,200 to 1,500 volumes a year; we have to cut that out, and only spent \$397 last year. Although there are thousands of unbound volumes in the library waiting to be bound, because we have not sufficient money to publish the papers that are passed upon by the advisory committee which passes upon all papers submitted to the institution for publication. Many of those papers are of great importance, not only to other departments of the Government, but to health societies and also are economically important. We published a review on the subject of the mosquito last spring and almost before it was off the press the Public Health Service, I understand, ordered an edition larger than ours, and the medical departments of the Army and Navy ordered I do not know how many.

Another paper that was forecast and looked forward to for a long time was the paper on the ship borer, the teredo, which was set up in May and came out in August. I believe private concerns in this country have republished that paper. You know the loss from the teredo in a year in this country is probably \$100,000,000, divided between the Navy, the Panama Canal, and the ship operators.

Mr. WOOD. What is that bug?

Mr. RAVENEL. They bore into the bottoms of the vessels and between wind and water in the woodwork of docks. I had a letter from the director of the Panama Canal within the last two weeks asking me if I would refer him to the person who had a patented process for treating wood so that it would not be attacked by the teredo.

Mr. WOOD. What kind of an animal is that?

Doctor WALCOTT. It is an ordinary worm, but it has a head and a group of little scales which it works back and forth, and it seems to enjoy any kind of wood. No matter whether you put into it these virulent poisons or not, they will still go ahead and attack a log, hard or soft, mahogany or any other kind of wood, and they get down under the water where they can get at it and honeycomb the bottom of the vessel so that in a couple of years it is gone.

Mr. WOOD. How large is it?

Doctor WALCOTT. There are about 20 or 30 species of them. They vary from small ones that will make a hole not much larger than a knitting needle, to ones that will make holes half an inch in diameter, and they do all of this boring simply by working those little sharp plates back and forth, the size of the hole depending on the size of the head.

Mr. WOOD. You can not poison them, you say?

Doctor WALCOTT. Apparently they have not found anything that will poison them; that is, the sea water soon carries the poison out in solution, and weakens it to such an extent that they can go ahead.

Mr. WOOD. They mostly work near the top of the water, don't they?

Doctor WALCOTT. They ride on the tide, yes. They do not work their way down to the bottom and, of course, they can not work above the water.

Mr. DICKINSON. Is there the same demand for the publications of the American Bureau of Ethnology as there is for the other publications?

Doctor WALCOTT. I know they do not remain long. What is the demand for your publications, Doctor Fewkes?

Doctor Fewkes. We distributed, last year, of our annual reports, 7,197; bulletins, 6,403; miscellaneous publications, etc., 615; or a total of 14,215.

Doctor WALCOTT. Mr. Chairman, in that appropriation the estimate is \$40,000. We are allowed \$16,300. That tells the story. I have nothing to say.

Doctor FEWKES. May I say a word just now? If I may be permitted, Mr. Chairman, I would like to say a word about the publications of the Bureau of Ethnology. The Bureau of Ethnology has one function, the production of knowledge, the publication of knowledge. Each year we have a report and we have several bulletins, all of which cover the work of the bureau, which are distributed gratis as far as they go, and last year we published the thirty-fifth and the thirty-sixth annual reports. We published a report by Mr. La Flesche on the Osage Tribe of Indians, which is really a ritual, a bulletin on the early history of the Creek Indians and neighboring tribes (491 pages, 10 plates), and another on the music of the Piutes.

Now, publication is so vital to us we really ought to have the old appropriation of \$21,000. We are reduced now to \$16,300, and that makes us exceedingly short in these publications. There are many demands for them, and several awaiting publication. For instance, let me give you an example. We have a large book on the Salish Basketry. Mr. H. D. Sargent, of Los Angeles, is willing to pay for the plates of this work, but I can not publish it because I have not the money. Then we have other publications which are waiting. We can not publish them because there is so little money.

There is another point I want to call attention to in this regard. The thirty-fourth annual report was transmitted to the Public Printer in March; I mean it was released for publication in March of this year. We are still waiting for its appearance.

Doctor WALCOTT. Mr. Chairman, the American Historical Association's report is transmitted through the Smithsonian to Congress. The preparation of it, etc., is not handled by the Smithsonian, but I think Doctor Jamieson and Doctor Learned, who have charge of that, are here. That is carried in our appropriation under "American Historical Association" toward the latter part of these estimates. These two gentlemen are here and can explain it.

Mr. WOOD. Very well.

MONDAY, DECEMBER 18, 1922.

UNITED STATES TARIFF COMMISSION.

STATEMENT OF THOMAS O. MARVIN, CHAIRMAN, AND JOHN F. BETHUNE, SECRETARY.

DUTIES OF COMMISSION.

Mr. MARVIN. Mr. Chairman, the Tariff Commission is a creature of the law. It was organized by Congress, its duties were prescribed by Congress, and, at your request, we have come here to-day to outline our work and the financial needs of the commission. I feel quite sure that the Committee on Appropriations does not wish to put any of the institutions which Congress has called into existence in the position of a grass-widow; you do not want us to sue you for nonsupport. We have no idea that any such thing will be necessary, but we feel that you are interested in the work of the commission; otherwise the commission would not have been instituted.

We feel that there has been an added evidence of your interest in the work of the Tariff Commission, and the need of such work by the legislation incorporated into the tariff act passed September 20, 1922, and signed on the 21st by the President, an act which very largely increased the duties and responsibilities of the Tariff Commission.

The commission was instituted by the act of September 8, 1916.

That act conferred on the Tariff Commission the duty, in general, if you will permit me briefly to summarize it, to investigate the operation of customs laws, their relation to the Federal revenues, and their effect upon the industries and labor of the country; to supply information to Congress; to investigate the tariff relations between the United States and foreign countries and the conditions, causes, and effect of the competition of the foreign industries with those of the United States; and also to investigate dumping and costs of production.

The original powers of the Tariff Commission were broad. They covered in a general way about all possible application of tariff information and required investigations into tariff conditions here and abroad, the effect of competition of foreign industries upon the industries of the United States, and the effect of our tariff laws upon the industries of this country and the conditions of labor.

In accordance with those provisions the Tariff Commission has operated up to the 1st of October of the present year, and in the conduct of our work under the original powers and duties we conducted a great many investigations and published many reports. I would like to file with the committee a summary of the principal subjects investigated and reported upon by the Tariff Commission up to the end of the fiscal year 1921. This is a pamphlet of 34 pages. Each item mentioned was a subject of investigation and report.

Mr. WASON. That is up to what date?

Mr. MARVIN. This goes into 1922; from 1917 to 1922. It covers all of the subjects investigated and the reports made by the commission.

Mr. WASON. What is the date of the report?

Mr. MARVIN. This report was printed in the spring of 1922. There have been quite a number of reports published since then. Some of



