Communications.

Our Washington Correspondence.

To the Editor of the Scientific American:

The appropriation for printing the *Gazette*, specifications, etc., at the Government printing office having been exhausted, the work of printing those documents will have to be stopped until a new appropriation has been made. The Government printer has withdrawn that part of his force employed in the branch office in the Patent Office building for the same reason, and the printing of patent heads, titles on drawings, etc., usually done in that room, has been stopped. The *Gazette* has been suspended with the issue of March 26, and the specifications bearing date April 2 are the last that will be printed until the deficiency appropriation bill has been passed. As the specifications cannot be printed, the issue of patents will have to be delayed, because the patent cannot go out without them. As no specifications will be printed during the interregnum, it is proposed to put the proof-readers, who are paid out of the Patent Office funds, to work at printing the titles on drawings, and thus the work of photo-lithographing may go on as usual. This interruption of the current work of the office is the result of the cutting down the appropriations by Congress, irrespective of the actual wants of the service; and this particular instance is but a specimen of many of the results of the diminished appropriations of last year. The Post Office is now in the same position as the Patent Office with respect to printing, and thus the work of the country suffers from the petty tricks and false economy of our Congressmen, who, to appear economical and to cover up their own shortcomings, cut and slashed away at the appropriations asked for, totally regardless of the necessities of the case.

Of a piece with this is the attempt now being made to cut down the salaries of the examining force from $200 to $250 each per year. If the public is to be served properly, proper salaries must be paid. The salaries now paid to the examiners are not sufficient to keep good men in that body, because they can procure a better income outside as patent solicitors, and if the bill is passed cutting down salaries, there is no doubt but that many of the best men will leave their positions in the examining corps, and their places be filled by less competent men.

PROTECTION OF ATTORNEYS.

A bill has been introduced before Congress for the better protection of patent attorneys. It provides for repealing Section 487 of the Revised Statutes, and requires all proceedings for suspension or disbarment of any attorney or patent agent from practice, before any bureau or department of the Government, to be commenced and determined before the Attorney-General, according to the usual rules of law and judicial proceedings. In case any such head of bureau shall disbar or suspend a practicing attorney arbitrarily, he shall be subject to a fine of from $1,000 to $5,000, and to imprisonment of from six months to two years, at the discretion of the court. The bill also provides that all persons who have been heretofore disbarred or suspended from practice as attorneys or patent agents before the Patent Office, or any other bureau or department, without charges having been made, due notice given, or proper opportunity given for defense before a competent tribunal, shall be restored to the roll of patent attorneys, and are authorized to act with the full powers and privileges from and after the passage of the act.

CONSULTING NATURALIST FOR THE AGRICULTURAL DEPARTMENT.

Senator Edmunds has introduced a bill providing for the appointment of a consulting naturalist to be attached to the Department of Agriculture, to investigate the following subjects: The better preservation of army and navy stores; the cause, prevention, and removal of infections; microscopic, parasitic diseases of men and animals, such as diphtheria, Texan cattle diseases, hog cholera, etc.; and to conduct such other investigations as may tend to the destruction of the cotton worm, the army worm, the weevil, the Colorado beetle, the grasshopper, and the curculio. He is also to set on foot investigations looking to the efficient preservation of butter, cheese, eggs, and fruit. The new officer is to be appointed by the President and confirmed by the Senate. His salary is left blank in the bill as introduced, but if he succeeds in half the work laid out for him, no amount that Congress is likely to fix will begin to equal the value of his services.

STANLEY'S AFRICAN DISCOVERIES.

The United States commercial agent at Gadoon reports to the Department of State that the knowledge derived from Stanley's discoveries on the Congo, or Livingstone river, is already bearing practical fruit. English missionaries have followed the course of the river as far as the first series of rapids, and are about to establish a missionary station at that point. It is reported that a modified form of the slave trade still exists between that region and the Portuguese islands of St. Thomas and Princess, through former agents of the slave trade between Gadoon and St. Paul de Loanda. A British gunboat recently captured a brig with over a hundred men, women, and children on board, in a miserable condition, who had been captured, baptized, and shipped near St. Paul as "free laborers." The spirit of the slave trade still exists, and if not carefully watched, will find means to revive and increase.

In this connection it may be stated that the Department of State has received information that the international expedition to Africa inaugurated by the Belgian Government, has lost two of its most worthy members, who died at Zanzibar—L. Crespel, the commander of the expedition, and Arnold Maes, the naturalist. The first died of sunstroke, and the latter of Zanzibar fever.

RAILWAYS IN THE NORTHWEST.

The United States Consul at Winnipeg writes to the Department of State that there is much activity in Manitoba in relation to railway matters. Canadian and English capitalists have purchased the first mortgage bonds of the St. Paul and Pacific Railroad, and propose to construct the northern extension in Minnesota, from the Red Lake River to the Manitoban frontier, and have it in running order during the coming summer. They also propose to lease and complete the Pembina branch of the Canada Pacific Railroad to connect with the Minnesota extension, and by November next it is expected that trains will be running from St. Paul to Winnipeg, and to a point twenty miles further north, where the branch line crosses the Canada Pacific road at Selkirk. From this point contracts are in execution for the construction of the main line eastward to the Lake of the Woods, so as to be completed during 1880. An equal distance westward of Thunder Bay, on Lake Superior, is also to be completed at the same time, and much pressure is being brought to bear on the Canadian government to procure the completion of the connecting links of the main road, but financial embarrassments will probably retard the work. The consul thinks that mutually profitable intercourse between the Western States and the Dominion would be greatly aided if the United States and Canadian governments were to make arrangements for aiding the construction of an international system of railways from Ottawa to the Sault Ste. Marie and thence to the Montreal river, there to connect with the Northern Pacific Railway, besides completing the latter eastward to Duluth.

THE TRANSIT OF MERCURY.

A transit of Mercury, by which it is expected that some important points in astronomy will be settled, takes place on May 6, and the astronomers at the Naval Observatory have sent out a pamphlet to many amateur astronomers, setting forth the desirability of having as many observations from different points as can be made, and giving directions by which those who wish to coöperate with the observatory can do so to the best advantage. Congress has appropriated $1,500 for the purpose of observing the transit, and, although the sum is not as large as could be used to advantage, yet it is believed that with the assistance of the amateur astronomers it will probably suffice, and that many interesting data will be gathered that will help to solve several interesting problems which now engage the attention of astronomers.

THE HOWGATE EXPEDITION.

Captain Howgate and his friends are beginning to get uneasy on account of the delay of Congress in providing means to forward his projected expedition. They have no doubt but that when the bill making the appropriation is brought up in the House, it will pass without much opposition, but they are afraid that the delay will imperil the enterprise. Reports from Labrador and other high latitudes confirm the opinions entertained here, that no season so favorable to northern exploration has occurred for thirty years, as, owing to the mild winter just passed, comparatively little ice was formed, and this is now supposed to be breaking up and drifting south, as the European steamers report having encountered icebergs much earlier this season than usual. In view of this, it is hoped that if the expedition can get away from our shores by July 25, no difficulty will be experienced in going directly north as far as Lady Franklin Bay, about 82°, nearly as far as the highest point reached by any former expedition. Should these hopes be realized, and a base of supplies be established in that vicinity during the coming summer, the friends of the expedition say that its success would be certain, in view of the well considered plans on which it is based. To establish this base of supplies, however, it is necessary that action be taken as soon as possible, as all the time between this and the last day when such an expedition should start can be profitably used in making proper preparations, without which success is very doubtful.

Washington, D. C. R.

Steering Screw Steamers.

To the Editor of the Scientific American:

In the issue of the SCIENTIFIC AMERICAN for April 13, 1878, there is an article concerning some experiments upon the steering of screw steamers. Allow me to call your attention to a report which appeared in *Engineering*, September 15, 1876, by a committee appointed at Bristol, England, to experiment upon the steering power of the rudder. This committee consisted of the following gentlemen: Sir William Thompson, Mr. J. R. Napier, Mr. William Froude, and Professor Osborne Reynolds. In closing this report the following statement is made:

"It appears from these experiments that on the reversing of the screw, whether reversing the action or not, the rudder is nearly powerless to turn the ship, and that she will turn more rapidly, but in less room, when going full speed ahead."

I believe the peculiarity in steering to which you have alluded in your paper was satisfactorily demonstrated at that time.

ATSON A. COOK.

Hopedale, Mass.

The Public School Twang.

The Rev. E. E. Hale ascribes the shrill voice of American women to the custom of requiring little girls to "read up," as it is called, in our large schools. The teachers expect a child of five to fill with her voice a room fifteen feet high and fifty feet square; as a consequence the child changes her low sweet home voice to the school scream, and in the course of time the school scream displaces the natural voice. The necessity of "speaking up" in recitation, so as to be heard across a large or noisy room, might be added as a cause of spoiled voices. That the schoolroom has this tendency may be noted any day in the extreme "clamor cry" of female teachers. We have known not a few sweet voiced young ladies to acquire the discordant school marm voice very rapidly after taking charge of a large school room; and possibly the little girls may acquire something of the tone by unconsciously imitating their teachers. Mr. Hale says:

"I remember at the great dining saloon of the Bauer au Lac Hotel, in Zurich, both the largest and finest dining hall I ever saw, when 500 people were dining at once at their different tables, I could single out my own countrywomen in all parts of the hall, no matter what their distance, by the shrill yell, more or less nasal, with which they summoned the waiters, ordered soup, asked for a napkin, or passed from pastry to ice-cream. Above the general roar of the buzz-buzz-buzz of 500 voices in conversation, you could distinguish the war cry of these eight or ten American women, as you distinguish signal rockets at night above a long and dark line of intrenchments. A casual observer would have no difficulty in telling, at the end of the day, how much pastry these women ate, or how often their plates were changed. We are so used to it in a Sound steamer, or other hall where women are together, that we do not notice it here. You need to be in another land to know what it is."

Bottling Air for Future Examination.

During the Centennial summer samples of air were collected on various occasions upon the exhibition grounds at Philadelphia, and in the different buildings; also in this city, in Brooklyn, Hoboken, and on many of the Adirondack mountains, with a view to transmitting them to the chemists of 1976, to determine whether the earth's atmosphere is undergoing change. That the atmosphere has undergone enormous changes since the earlier geological ages is beyond a doubt. The present question is whether such changes are still slowly going on, and what their nature may be. The ordinary statement that the air has an invariable composition is not strictly true, since samples of air collected at different times and in different places are never found to be absolutely identical. The difference may be slight; but an apparently insignificant decrease in the percentage of oxygen becomes of grave importance when the deficiency, as is usually the case, is made up of less beneficial elements.

Port Wine Marks.

Several English surgeons have of late endeavored to remove this disfigurement from the human face, obliterating the mark without scar. In these cases the mark was confined to the right half of the face, and the treatment consisted of scarification by means of parallel incisions the entire thickness of the skin, made by a frozen scalpel, the skin being also frozen by means of the ether spray. The cuts were one sixteenth of an inch apart, and as soon as these were healed a second set of parallel incisions were made obliquely to the direction of the first set, and so on with a series of operations until complete. Perfect success was the result, as the port wine mark gradually faded away, and was finally obliterated without leaving a scar.

Instruments have since been prepared having sixteen parallel blades, which make the operation very simple to execute.

Vortex Rings.

Take a bandbox with a tightly fitting lid, in which cut a round hole 1½ inch diameter. Insert a piece of smoldering brown paper till the box is full of smoke. A tap on the bottom of the box will now start a ring from the hole, which, if the surrounding air be at rest, will sail for some yards distant. The form and internal motion of the rings can be better studied when they are produced by giving the bottom of the box a gentle pressure with the finger end. The ring then moves slowly, but soon breaks up. A candle can be blown out at a distance of several feet by aiming a ring at it. The circle is the equilibrium form of these rings, and their vibration about this form may be studied by using a long shaped hole instead of a round one.

A New Ozone Machine.

In a recent lecture on ozone and the atmosphere, at the Stevens Institute, Professor Leeds exhibited a new machine for the production of ozone in large quantities and in a very concentrated state. The oxygen, after cooling to zero, was deprived of every remaining trace of moisture by drying agents, and then passed through tubes highly electrified. The ozone so produced exhibited intense chemical energy, bleaching indigo instantly, oxidizing silver, etc. The generation of ozone during the decomposition of water by the galvanic current was also visibly illustrated. At the close of the lecture Professor Leeds pointed out the necessity of systematic observation upon atmospheric ozone in all parts of the country, and the great value of such observations in connection with the development and spread of diseases.