

## REPORT OF THE SECRETARY OF THE INTERIOR.

The following are two extracts from the report of the Secretary of the Interior—Hon. J. Thompson. They do honor to his head and heart, and will be found very interesting to our inventors and farmers:—

## PATENT OFFICE.

The record of the operations of the Patent Office during the past year furnishes, as usual, a most satisfactory exhibit of the steady progress of our country in the application of science to the arts.

During the three quarters ending September 30, 1859, five thousand one hundred and sixty-seven applications for new patents were received; eight hundred and thirteen caveats filed, and three thousand three hundred and thirty-four patents issued and re-issued.

By a reference to my report of last year, it will be seen there has been an increase in the business of the office for the past nine months, over the corresponding months of 1858, of one thousand and seventy-six applications for patents, one hundred and seven caveats, and five hundred and eighteen patents granted.

The receipts for the three quarters were \$188,538 77, being an increase of £37,554 86 over the corresponding period of last year. The expenditures were \$157,101 15, leaving a surplus on hand of \$31,437 62.

Congress in its last session, in making provision for the publication of the mechanical portion of the Patent Office report, directed the Secretary of the Interior to cause the report "to be prepared and submitted in such manner as that the plates and drawings necessary to illustrate each subject shall be inserted so as to comprise the entire report in one volume, not to exceed eight hundred pages." With an anxious desire to comply in all respects with the expressed will of Congress, I have given to the subject unusual attention. The plates without descriptions and claims would be unintelligible; the descriptions and claims would be of no value. The plates reduced to the smallest possible dimensions, and the descriptions and claims drawn up without a single redundant word, printed in the type required for all Congressional documents, will necessarily occupy more space than eight hundred pages. A literal compliance with the law is, therefore, a physical impossibility. Yielding to the necessities of the case, I have directed the plates to be prepared with the greatest possible economy of space, and the descriptions and claims with the utmost brevity consistent with perspicuity, and submit the matter to the consideration of Congress, with a frank admission that the law has not been obeyed because it required an impossibility.

The principle upon which the Patent Office was organized, and has been conducted up to this time, is, that its business should produce so much in the way of fees as would prove sufficient to defray its necessary expenses. It has developed no burden upon the Treasury of the United States. It sustains itself; and for this reason its friends have felt the greater confidence in appealing to Congress for such legislation as may be required to perfect its organization. For several successive years the attention of Congress has been earnestly invoked to the necessity of certain amendments in the existing laws, which experience has proved to be highly important, if not absolutely necessary.

The committees of Congress to whom the subject has been referred have uniformly approved these amendments, and reported in favor of their adoption; but in every case Congress has failed to consider and act upon the reports.

An increase of the business of the bureau, without a corresponding increase of force to manage it, results necessarily in one or two serious evils; either, on the one hand, vexatious delay, or, on the other, hasty and imperfect examinations of applications for patents. A few facts will suffice to illustrate this: In 1855 when the examining force of the bureau was increased to its present number, there were four thousand four hundred and thirty-five applications for patents. The number of applications for the year 1859, taking the average number of applications per month for the past ten months as the basis of the estimate, will be six thousand nine hundred; showing an increase of business for 1859 over 1855 of two thousand four hundred and sixty-five cases. In 1855 each examining room disposed of three hundred and sixty-nine applications; in 1859 each examining room will dispose of five hundred and seventy-five cases, being

an increase in the amount of labor performed of fifty-five per cent. To this it may be added that the labor of making a thorough examination of any application for a patent increases from year to year somewhat in proportion to the similar applications previously received. Under these circumstances it is impossible for the office to do full justice in the transaction of its business either to itself or to the public. This is not right. The income of the office is amply sufficient to meet all the expenses which may be incurred in re-organizing it upon such a basis as will give it the greatest efficiency, and enable it to meet promptly all the demands of the country. The inventors pay for having their business done, and it is therefore but simple justice that it should be done with a proper and careful examination, and without unnecessary delay. It would be judicious, then, in Congress to authorize the appointment, from time to time, of such additional examiners, and first assistant-examiners as may be required to transact the business of the office with dispatch, provided the annual expenses of the office shall in no case exceed the annual receipts.

I take occasion here to renew the recommendation, contained in my report of 1857, that the fees required from British subjects should be reduced. Her Britannic Majesty's representative at Washington has recently called the attention of this government to this subject. In the kingdom of Great Britain no discrimination is now made between American citizens and British subjects. I think this courtesy should be reciprocated, and that, in respect to office fees, British subjects should be placed on the same footing as citizens of the United States.

Long experience and great familiarity with the working of this important bureau induce me to renew, not only the preceding but all the recommendations contained in my previous reports, with still greater confidence in their propriety and correctness; and I must add that the inventors of our country, now grown to be a large, worthy and most useful class, have a right to claim a share of the time and attention of the law-making branch of the government, and to complain when their interests and business are wholly neglected or overlooked.

## AGRICULTURE.

The following is the more important part of the report relating to this topic:—

The last Congress having greatly reduced the appropriations below former estimates, the policy of distributing seeds of domestic growth was abandoned, and no portion of the appropriation has been expended for their purchase. It is believed to be both wise and just to confine operations to the purchase and distribution of such varieties of plants, seeds, cuttings, &c., as have not already been introduced into the country.

The tea seed has been introduced from China, and germinated in houses prepared for that purpose in Washington. The step next to be taken is to convey the plants to suitable localities, and to cause them to be tested under the supervision of intelligent and responsible persons. This will be done at the earliest practicable period, and with no apprehension as to their successful growth in all cases in which proper attention shall be given.

The successful cultivation of the vine in this country no longer remains an experiment. The breadth of land planted in vineyards is every day extending, and the yield is large and remunerative. The estimate is that we now have more than eleven thousand acres devoted to this culture; and while the product of some vineyards, in the most favorable season, has been eight hundred gallons to the acre, the average crop per acre of the whole country will compare favorably with that of the most successful wine-producing countries of Europe, and its value is five or six hundred per cent greater at the several places of production. The different species of native grapes have been sought for, and, as far as practicable, the value of each for the manufacture of wine has been tested by chemical analysis. The modes of cultivation, and the processes of making and preserving wine, have been examined, and much interesting and valuable information obtained. A large number of cuttings, of the best and most approved varieties, have been prepared for distribution.

Steps have been taken to introduce from foreign countries a variety of seeds, plants and trees, which may be usefully cultivated and grown in this country.

A number of scientific gentlemen in various parts of

the United States have been engaged for several years past, without compensation, in making meteorological observations, which have been regularly communicated to the Patent Office; the necessary instruments being provided at the joint expense of the Patent Office and the Smithsonian Institution. To reduce these observations to a condensed tabular form has involved an expenditure which has also been jointly sustained. These observations, thus condensed, are now ready for the press, and will accompany the annual report of the Commissioner of Patents. They exhibit the mean temperature of the seasons in different parts of the country, and thus furnish data esteemed of high importance in scientific agriculture, and as of great value in supplying the facts on which are based important theories of the winds and storms that sweep over the continent.

In justice to the gentlemen who have devoted their time and labor in this behalf, these tables should be printed; but whether the expense should be defrayed by the Smithsonian Institution or by the government is a question submitted to the determination of Congress.

## REPORT OF THE SECRETARY OF WAR.

We give a few interesting extracts from the Report of the Secretary of War, as they relate to inventions, the arts and sciences:—

## ORDNANCE, ARMS AND EQUIPMENTS.

I have ordered the estimates from the Bureau of Ordnance to be made mainly in conformity to the policy which the action of the last Congress seemed to indicate by its appropriations. I cannot forbear to express the opinion, however, that to abridge the manufacture of arms is, to say the least, a measure of very doubtful economy, and may prove in the end to be both dangerous and expensive. A foreign war would create an immediate demand for an immense number of arms, probably enough, nearly, to strip all our arsenals, and to require the purchase of further supplies from private manufacturers, at whose mercy the government would be in the emergencies of war.

That constant progress in the improvement of arms and other appliances of warfare which has of late characterized the military service of other nations, has been, up to this time, no less active in ours. The experiments which have been in progress for some time past to ascertain the fitness of iron for the construction of gun carriages for sea-coast and garrison cannon, have resulted in complete success. They demonstrate the practicability of using iron in place of wood for the fabrication of such carriages, not only to very great advantages in point of economy, but also in quality. The ultimate saving to the country by this manufacture can hardly be estimated. Gun carriages heretofore have been not only expensive, but it has been found impossible to preserve the wood of which they were constructed from decay; so that each gun in all our forts must be remounted once every ten years to be fit for service. The substitution of iron for wood has remedied this perfectly, and the gun carriage may now be considered as indestructible. Models of wrought-iron sea-coast and garrison carriages have accordingly been adopted, and iron will be used in their fabrication hereafter.

Improvement has been introduced, also, in the forms of cannons, greatly increasing their endurance under repeated discharges, and rendering them consequently more reliable for service. In view of the not unfrequent accidents from the bursting of iron cannon, and the disastrous consequences that may result therefrom, it is important that the adopted models should be the best adapted for strength, and that none but the best material should be used in, and the best processes applied to, their fabrication. Experiments to ascertain the best model have been instituted and carried on with satisfactory results. They are still in progress, with special reference to a class of cannon of heavier caliber, for the more complete determination of the best mode of distributing the given weight of metal throughout the different parts of the cannon so as to obtain the greatest strength.

The subject of rifled cannon and projectiles has received much attention, and careful experiments have been instituted to test a variety of such contrivances. It is not deemed advisable to proceed to the manufacture of such cannon, beyond those required for experimental purposes, until full and fair trials shall have demonstrated, practically, which of the various inventions possesses