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TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

Revenue DEPARTMENT

G.O. No. 609 *Revenue* Press.
B.P. No. Mis.

Dated 17th April 1898. 197 .

Not to be folded or roughly handled

609
GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

17th April 1878, No. 609.

Read the following papers :—

No. 215. Proceedings of the Board of Revenue, dated 11th April 1878, Miscellaneous No. 3,837.

Read the following letter from W. R. ROBERTSON, Esq., M.R.A.C., Superintendent of Government Farms, to C. A. GALTON, Esq., Acting Secretary to the Board of Revenue, dated Sydapet, 5th April 1878, No. 309.

THE reports recently received from so many parts of the Presidency regarding the appearance of immense numbers of locusts render it necessary that every reasonable precautionary measure should be taken for the protection of the next season's crop. I have the honor, therefore, to invite attention to the accompanying extract from *Nature* relative to the work of the United States' Entomological Commission, which Commission has special charge of the "Locust Investigation" in that country. The reports promise to be most valuable and thoroughly exhaustive, and the first of these it was expected would be published in February or March. As this Commission is composed of very eminent men, and as their investigations have been made in the tracts of country where locusts have of late committed great destruction, there is every promise that locust investigation, at any rate, will be very perfect. I would suggest, therefore, that efforts should be made to secure copies of these reports, the first of which, I venture, to suggest should be applied for by telegraph either to the British Ambassador at Washington, or to the Commissioner of Agriculture at the same City.

ENCLOSURE No. 1.

ENTOMOLOGY IN AMERICA.

THE United States' Entomological Commission, which was organised and placed under the auspices of Professor Hayden of the Geological Survey for the purpose of investigating and reporting the entire subject of insect ravages throughout the western regions of our Continent, have completed their field labor for the present season.

The members of the Commission have been busily engaged in the preparation of the several parts of their annual report, and will soon meet in Washington, where they will have a protracted sitting to get everything ready for the printer. This report is looked for with much interest by the farmers of the West, and the character of the Commissioners is a guarantee that it will be creditable from the scientific and valuable from the practical stand-point. The Report will contain sixteen chapters under the following heads:—Introduction—Riley; Chronological History—Packard; Statistics of Losses—Thomas; Classification and Nomenclature—Thomas; Geographical Distribution—Thomas and Packard; Migration and Meteorology—Packard and Thomas; Original Permanent Breeding Grounds—Riley, Packard, and Thomas; Habits and Natural History—Riley; Embryology—Packard; Metamorphoses—Riley and Packard; Invertebrate Enemies—Riley; Vertebrate Enemies—Thomas; Remedies and Devices for Destruction—Riley; Prairie Fires *versus* Locust Injury—Riley; Agricultural Bearings of the Subject—Thomas; Ravages of other Locusts—Packard and Riley; Locust Ravages in other countries.

These chapters will embrace many sub-chapters, and the report will be as exhaustive as the limited time for its preparation will permit.

Relative

In Chapter IV the western extension and the northern and eastern limit of the species range are fully given.

In Chapter V the laws governing its migrations are, for the first time, defined. A very large number of data have been collected in reference to the subjects of this chapter. Not only are the general laws governing the movements of the insect now defined showing a regular migration southward and return migration northward, which may be counted on and foreseen; but many important and highly interesting facts in reference to their local flights are brought to light, which will henceforward form a part of the history of the insect.

In Chapter VII several other laws governing the species are also adduced; and the importance of the discovery of the laws which regulate the doings and movements of the pest cannot be over-estimated. In said Chapter VII many new facts will, for the first time, appear, and all that is definite and accurate be made known.

In Chapter X many new discoveries will be recorded, some of them of great scientific interest and importance. Of these may be mentioned the transformation of the silky mite (*Trombidium sericeum*). This is an eight-legged creature which preys on the locust eggs. It is proved to be the mature form of the little six-legged mite (*Astoma gryllaria*) which is parasitic on the locust. Insects described under different genera are thus proved to be specifically identical. The life-history of the blister-beetles will also be given; their larvae feeding upon locust eggs and undergoing singular changes called hypermetamorphoses. The interest attaching to this discovery among entomologists, as well as among farmers, is best appreciated when it is considered that absolutely nothing has heretofore been known of the larval habits of these blister-beetles, notwithstanding the fact that for half a century much attention has been given to the subject by scientific men on account of the commercial value of *Cantharis* or Spanish-fly, and of the great injury to potatoes and other plants committed by several of our American species.

In Chapter XI are given the locust-feeding habits of many Western animals not heretofore known to have that habit, and the good offices of birds are especially made manifest; examinations of the stomachs of over 90 species and 630 specimens having been made with special reference to their locust-eating habits. The record in reference to these examinations is very full, giving the date, the locality, the common and scientific names of the species, and the number of locusts and other insects found in each. The value heretofore placed on these aids by entomologists is fully sustained by this record.

In Chapter XII, which will be one of the most extended and most important practically, it is clearly shown that the young locusts may be controlled, and by what means; while the way is pointed out how to better control the winged insects. Many valuable devices for destruction will be illustrated, among them one invented by Professor Riley, which gave great satisfaction, and will, it is believed, supersede all others as a cheap and practicable remedy applicable at any season, whether the plants or the insects be small or large.

In Chapters II and IV are given statistics showing the immense losses inflicted on Western agriculturists by the locust. These chapters also show what crops are most liable to injury, and what are most easily protected; also the best methods of cropping in order to reduce the injury to a minimum. A chemical analysis of the dead locusts has been made, and is unusually interesting. The insects furnish a new oil which will be christened Coloptine, and a very large percentage of pure formic acid. Though this acid exists in the ant and some other insects, it is with difficulty obtained in large quantities; whereas by the action of sulphuric acid upon the locust juices it passes off with great readiness and in remarkable quantity and gravity. The various uses of this acid, whether as a therapeutic agent or as laboratory reagents, &c., are capable of great and valuable extension when it can once be obtained so readily and in such quantity.

The report is expected to make about 500 pages, and will, it is hoped, be published in February or March. Although the Commissioners have divided the labor among them, the report will form one complete whole, as the work of each will be discussed and revised by the Commission as a whole.

The annual report, which is intended more particularly for the practical farming public, will be followed by memoirs of a more purely scientific nature—one by Dr. Packard on Anatomy and Embryology; one by Professor Riley on the Natural History of other locusts; and one by Professor Thomas on the Classification of the *Aceridae*.

While it has been the object of the Commission to cover as much ground as possible, so as to make the annual report as full and valuable as the time would permit, there yet remain several important subjects that it has so far been impossible to properly and exhaustively study. The territory affected is so vast, embracing over a million square miles, that much of it was imperfectly explored, especially in the north-west. Mr. Riley had to cut short his investigations in British America both for want of time and want of funds. For similar reasons, and on account of Indian troubles, Montana, Wyoming, and Dakota have been but superficially explored.

The year 1877 was an abnormal year, i.e., the insect had the previous year overrun a large section of country in which it is not indigenous, hatched in such country in the spring. This was most fortunate for many reasons, as it enabled the Commission to carefully study the insects in this their unnatural condition and to carry on experiments with a view of learning how to control them. Much of the work of the Commission was with these young insects. The losses sustained through the devastation of the pest by young and struggling frontier populations, ill-able to bear them, were immense; and there was so much discouragement that hundreds and thousands of persons were on the point of abandoning their new homes last spring. At this juncture the Commission went into the field, and by its encouraging predictions (which were all verified) and recommendations imbued the people with hope and confidence, and drew westward again the emigration that had almost stopped. All this work, however, interfered with needed investigations into the proper range, the native home and breeding grounds, the source of swarms, and many other important questions which can only be properly studied during a normal year. It is, therefore, very important that the investigations be continued until every question is settled that human investigation can settle.

For the proper settlement of some of the questions the co-operation of the dominion Government is desirable, and has been promised by the Canadian authorities if the work of the Commission should continue.

It will be unwise to stop the work of the Commission before completed. The work should be made so thorough as to obviate any necessity in future years of creating another Commission for the same purpose. After careful estimates it is concluded that the work can be satisfactorily completed only with two more years' investigation and experiment. The Commission, therefore, ask for a continuance of the appropriation of 25,000 dols., asked for a year ago.

There are various other injurious insects of national importance, of which much has yet to be learned, and in addition to completing the locust investigation, the Commission contemplate, during the coming two years, studying and reporting on some of these worst enemies to the American agriculture. They are especially desirous of reporting on the cotton-worm of the South, which, though often so disastrous to the cotton-crop, has never been fully studied, and in the mere Natural History, of which there are yet many mysteries and conflicting theories.

Much has yet to be done in giving practical form to the conclusions arrived at and plans proposed by the Commission to enable the work already done to bear proper fruit. To bring about the needed co-operation of the two Governments, to cause proper laws to be enacted in all the States interested, and to enforce the truths that alone will make man master of the situation, is largely the work of the future.

SUBMITTED to Government with the Board's recommendation that steps be taken to procure several copies of the report with the least possible delay.

(True Copies and Extract.)

(Signed) C. A. GALTON,
Acting Secretary.

No. 216. From Surgeon-Major G. BIDIE, M.B., Superintendent, Government Central Museum, to C. G. MASTER, Esq., Secretary to Government, Revenue Department, dated Madras, 12th April 1878, No. 93.

As I observe that the United States' Entomological Commission organised under Professor Hayden, of the Geological Survey, for the purpose of investigating the ravages of insects on the Continent of America is about to publish an annual report, I have the honor to request that His Grace the Governor in Council may be pleased to apply for one or more copies of the work for the Museum.

2. The report promises to be of great scientific interest and practical value, as it will deal not only with the natural history of insects destructive to cultivated plants, but also afford information as to the best means of protecting crops from such pests.

3. Professor Hayden is most liberal in sending the publications of the Geological Survey to the Madras Museum, but in case the work now referred to should not be sent, it seems desirable to take the precaution of asking for a copy or copies of the forthcoming annual report, as well as the succeeding memoirs promised on the same subject.

REVENUE DEPARTMENT, 17TH APRIL 1878, No. 609.

No. 217.

ORDER THEREON, 17th April 1878, No. 609.

Miscellaneous.

THE Board of Revenue are authorised to obtain direct from America (10) ten copies of the reports referred to, and on receipt two copies will be supplied for the use of the Museum.

(True Extract.)

(Signed) C. G. MASTER,
Secretary to Government.

To the Board of Revenue.
„ the Superintendent, Government Central Museum.

Ed. F. R. Bantleman.

Revenue Department

Min. No 3837

Proceedings of the Board of Revenue.
Dated 11th April 1878.

Read the following:

No. 309

From,

W. R. Robertson Esq. M.A.
Superintendent of Govt. Farms

To,

L. A. Galton Esq.
Acting Secretary, Board of Revenue
Madras.

Sir,

The reports recently received
from so many parts of the Presidency,
regarding the appearance of immense
numbers of Locusts, render it necessary
that every reasonable precautionary
measure should be taken for the pro-
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relative

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Govt. of 1878 Madras.
REVENUE.

THE BOARD OF REVENUE.

Secy. Secy. Secy.

G.O. 17th April 1878, No. 309.

APRIL.

Nos. 215-217.

Annual Report of the United States' Ethno-
logical Commission.—Authorizing Report of
Revenue to obtain direct from American ten copies
of —, on receipt of which two will be supplied to
the Museum.

relative to the work of the United States
Entomological Commission which
Commission has special charge of the
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The reports promise to be most valuable
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first of these it was expected would
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As this Commission is composed of very
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where Locusts have of late committed
great destruction, there is every promise
that Locust investigation, at any rate,
will be very perfect. I would suggest
therefore that efforts should be made
to secure copies of these reports, the
first of which I venture to suggest should
be applied for by telegraph either to
the British Ambassador at Washington,

or, to the Commissioner of Agriculture
at the same city.

Govt. Farm's Office } I have to
Sydney 5 April 1878 } W. R. Robertson

Submitted to Government with
the Board's recommendation that steps
be taken to procure several copies of
the report with the least possible delay.

(Enc. Copy Robert)

W. R. Robertson
As Secretary

To The Secretary to Govt. R.D.
with original enclosure to be returned.

N^o 93

Government Central Museum
Madras 12th April 1878

From

Surgeon Major G. Bidie M. B.
Inft^l Government Central Museum

To

The Secretary to Government,
Revenue Department

Sir,

As I have that the United
States Entomological Commission
organised under Prof. Hayden of the
Geological Survey, for the purpose of
investigating the ravages of insects on
the Continent of America is about to
publish an annual report, I have the
honour to request that His Grace
the Governor in Council may be
pleased to apply for one or more
copies of the work for the Museum.

Revenue Office

10/6/78

Proceedings of the

Board of Revenue

Encl.
Orio

Dated 14th April 1878

Recd. 17th April 1878

Subj. letter from
Surgeon Major G. Bidie on the
subject of Revenue Office
taken of Revenue Office
of West Bengal from Revenue

100

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3. Prof. Hayden is most liberal
in sending the publication of the
Geological Survey to the Madras
Museum, but in case the work
now referred to should not be sent,
it seems desirable to take the precaution
of asking for a copy or copies of the
forthcoming annual report, as well
as the succeeding memoirs promised
on the same subject.

I have the honor to be,

Sir,

Your most Obedt. Servant,

Didie Ruf Sengcoy
Supt. Govt. C. Museum

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Revenue Department
No 609

Proceedings of the Madras Government
Under date the 17th April 1898

Read the following

Proc. of the Board of Revenue
dated 11 April 1898 No
3834, Supt. Govt. letter from
Supt. Govt. Farms and
recommending that steps
be taken to procure copies of
the Reports of the United
States Entomological Com-
mission - also a letter from
Surgeon Major G. Bidie M.B.
Supt. Govt. C. Museum dated 12th
April 1898 No 93, requesting that
application be made for copies
of the Annual Report of
the United States Entomological
Commission for the use of the
Museum.

The Board of
Revenue are authorized
to

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17/4

609

Revenue 1898 & 1899

Government of Madras
No 609. 17 April 1898

Fig 3

No 1640

Surgeon Major G. Bidie M.B.

Supt. Govt. C. Museum

7

for copy to Government

Revenue Department

Dated 12th April 1898

Requesting that

application be made

for a copy of the annual

report of the United States

Entomological Commission

for the use of the Museum

c. 16/4/98 R 74/98

No 216

to obtain direct from
America ¹⁰ ~~12~~ ^{ten} twelve copies
of the reports referred to,
and on receipt two
copies will be supplied
for the use of the
Museum.

YLL

14. To the Board of Revenue on 5 May
2 the Dept of Public Instruction

69/9

G. O. 609

Respecting application for
annual report of the United
States Entomological Commission

609
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Wm. A. Robinson

Dec

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C. 16/4/58 R 17/4/58