

FIGHTING HARMFUL MOTHS IN PHILATELY

Vladimir Kachan, Belarus

Moths, like other insects, are an important part of our planet's biodiversity. Moths are diverse creatures, associated with forests, shrublands, tussocklands, wetlands, mountain scree and alpine meadows, coastal dunes and even subantarctic islands. The extraordinary diversity and abundance of moth species worldwide is a direct result of their long history and specialized diets. Moths are a crucial insect group encompassing more than 160,000 species, and they are among the most ancient of Earth's inhabitants, with some fossils believed to be about 200 million years old (**Figure 1**).



Fig 1. Stamp of Brazil 2016 with fossil moth

There are a considerable number of pests of agriculture plants and forests among moths. By the end of the 19th century, the importance of insects to agriculture had been recognized, both as potential pests and as beneficials. This was of particular importance in Australia, since imported insects often had no natural enemies and spread extremely quickly. Therefore, an entomological study was carried out to prevent potential agricultural disasters through biological control of pests, many of which were moths. The Ministry of Agriculture was responsible for this, and it hired a so-called "Governmental Entomologist" who headed the "Entomological Department" of the Ministry (**Figure 2**).



Fig 2. Victoria 1896 official O.H.M.S. Frank Stamp parcel tag of Agriculture Department, Government Entomologist

Moth damage to paper and archival documents has been an age-old problem. When it comes to securely filing and storing papers, one of the most overlooked aspects is infestation. Damage can vary widely, from a few holes in the documents, to complete destruction. The most common type of insects that attack paper objects is case-bearing clothes moth (*Tinea pellionella*) (**Figure 3**). Therefore, paper preservatives have been developed to combat this problem (**Figure 4**).

A few species of moth are harmful. These include the moths that destroy crops, fruit, or trees and the clothes moths that damage woollen goods. With a wingspan of



Fig 3. Service postal letter of Swiss post 1954 with harmful moth *Tinea pellionella*

Fig 4. French letter-card 1887 with publicity message about preservative paper against moths



Fig 5. Belgium 1936 Giro envelope with flying clothes moths in advertising

about 2cm, the common brown house moth or false clothes-moth, is one representative of many of small moth species which do harm damage clothing, furs, carpets, furniture upholstery (Figure 5).

Most of us regard our closets, drawers, and storage nooks as sacred personal space, so it's a rude awakening when these private places are invaded — particularly when we find that the intruders have been boring holes through our wool, cashmere and other beloved fabrics. You know the culprits. Small and seemingly benign with their harmless fluttery wings, clothing

moths can wreak havoc on a wardrobe before you even realize what you're up against. These are webbing clothes moths - small yellowish moths, the larvae of which feed on wool or fur (Figure 6). Both the webbing clothes moth and the case-bearing clothes moth are worldwide in distribution, feed on animal by-products such as furs, wool carpets, and tapestries, and can cause damage to stored woolen clothing. Clean up and clear out meticulous cleaning is the best line of defense against clothing moths. The moths, along with their eggs and larvae, can be killed by laundering fabrics in a 120-degree wash cycle. Whether you've found moths in your home or not, it's wise to store animal fiber materials in dry, airtight containers or sealed bags to keep moths at bay (Figure 7).

The smallest harmful moths have a wingspan of just a few millimetres. Despite their small size, many smallest moths are also significant pests in food storehouses by enmeshing food in a net of fiber. Most moth pests of food processing facilities belong to the family Pyralidae. Adult moths do not feed and damage is caused by the larval stage which features a heavily sclerotized head capsule with biting and chewing mouthparts while the rest of the elongated body is flexible and unpigmented. In addition to the consumption and contamination of food, moth larvae produce silk from glands in the mouth which builds into webbing. Chilo partellus or spotted stem borer from Pyralidae family is one of the most economically damaging pests in Asia and Africa, whose caterpillars attack all parts of the plant except the roots (Figure 8).



Fig 6. Meter mark of Germany 1954 with clothes moth *Tineola bisselliella*



Fig 7. U.S. Stationery Announcement Card post passed in 1951 with advertising mothproof cleaning system



Fig 8. Stamp of Kenya 1995 with caterpillar of harmful moth *Chilo partellus*



Fig 9. Imperforated set stamps of Central Africa 1965 with harmful moths

There are a considerable number of pests of agriculture plants among moths. A few species of moths destroy crops, fruit, or trees (**Figure 9**). Grain moth is a pest of stored grain and is active at low temperatures and can cause considerable damage during the winter months. Adults cause no damage but the larva will require a whole kernel or caked material for development. Adults are attracted to light. They prefer to attack barley, rye, corn, oats, rice and various seeds. It attacks both grains in the field and in storage, but only whole kernels.

Moth *Lymantria monacha* is a major pest of broadleaved and coniferous trees in Europe and Asia (**Figure 10**). The larvae feed preferentially on spruce and pine. In spring the larvae consume the first buds, then later the needles. A single caterpillar eats about 200 pine, or 1000 spruce needles and twice as many are damaged by biting off. Spruces die at 70 percent needle loss and pine at 90 percent. Outbreaks can cause major damage in forestry.



Fig 10. Moth *Lymantria monacha* on stamp of Switzerland 1953



Fig 11. Stamp of Romania 1964 with Gypsy moth (*Lymantria dispar*)

Many other moths are pests of agricultural plants, orchards and forests. The Gypsy Moth (*Lymantria dispar*) is one of the most widespread pests of forests and fruit gardens (**Figure 11**).

It can be found almost all over the world. The caterpillars of that moth do harm to more than 300 different species of plants (**Figure 12**). The caterpillars of the Magpie Moth (*Abraxas*



Fig 12. Souvenir sheet of Paraguay 1980 with famous Albrecht Durer's watercolour 1503 'The Virgin among a Multitude of Animals' with moth *Lymantria dispar* illustration



Fig 13. Stamp of Switzerland 1957 with moth *Abraxas grossulariata*



Fig 14. Specimen of Tuvalu stamp 1980 with harmful moth *Dudua aprobola* of Tortricidae family



Fig 15. Proof of New Zealand 1970 with harmful moth *Charagia virescens* of Hepialidae family

grossulariata) of Geometridae family damage the buds, leaves, and flowers of apple, pear, cherry, and quince trees (Figure 13). The caterpillars of the moth families Cossidae and Tortricidae live in the roots, branches, and trunks of leaf-bearing trees, where they make long passages, resulting in killing the trees (Figure 14). The caterpillars of the moth family Hepialidae harm the trunks and roots of trees and cultivated grass plants (Figure 15).

In the advanced countries of the world, there are entomological societies that study the effects of harmful moths and methods of combating them, the development and testing of new insecticides and other control agents (Figure 16). The main tasks of these societies are the investigation of the fauna and biology of insects, the development of measures to fight pests, and the protection of useful species.



Fig 16. Meter mark 1982 of Entomological Society of Italy

The battle against pests, such as harmful moths, has resulted in the development of numerous insecticides to destroy its larval stage (Figure 17).



Fig 17. 1925 French booklet advertising the insecticide Mortis which destroy Rats, Mice, Bedbugs, Moths

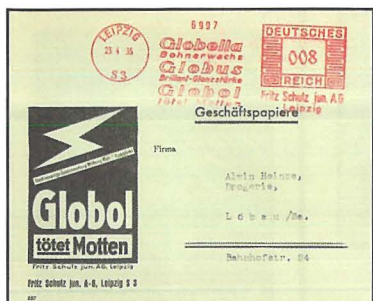


Fig 18. Meter mark of Germany 1935 with ads - "Globol" kill moths

In 1942, the first field tests of the new contact insecticide DDT were carried out on moths and many other agricultural pests (Figure 19). Later it was replaced by the agricultural insecticide "Duolit" (Figure 20). Since then, many scientific organizations have developed a wide variety of biological and chemical insecticides to control harmful moths (Figure 21). Among the special chemicals for combating harmful moths and other insects, crystals and

In the first half of the 20th century, the German moth remedy «Globol» proved to be brilliant (Figure 18). It not only scares away the moths, like some outdated moth remedies, but it kills moths and moth eggs.



Fig 19. Stationery card of Belgium 1946 with an advertisement for the insecticide DDT to control harmful moths *Tineola bisselliella*



Fig 20. Meter mark of Germany 1947 with the image of a dying moth and an advertisement for the insecticide 'Duolit'

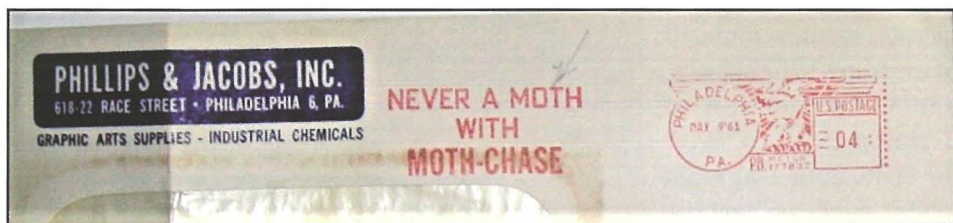


Fig 21. Meter mark of USA 1961 promoting moth-chase



Fig 22. Meter mark of USA 1958 with the slogan "Expello kill moths!"

insecticides from moths of the Expello brand are known (**Figure 22**).

From 1919, the German chemist Ernst Meckbach and the entomologist Erich Titschack conducted intensive research into the clothes moth and developed the first moth repellent for wool, which was called Eulan, at the paint factory formerly Friedrich Bayer & Co. in Leverkusen, Germany (**Figure 23**). The further developed substance mixture Eulan was used for decades as a textile and carpet protection agent against moths and beetles. The chemical structure of the active substances contained in it was kept secret. After the patent protection expires, similar products are manufactured under the product name Mitin (**Figure 24**). Later, aerosol insecticides were produced to control harmful moths and other insects (**Figure 25**). An appropriately labelled insecticide product may be used to control adult moth populations.

I hope that this article, illustrated by different types of philatelic material, will help for philatelists in the further development of the thematic collection "Moths". The Author is ready to help for philatelists in creating or improving of philatelic exhibits on butterflies and moths. His address: Vladimir Kachan, street Kulibina 9-49, Minsk-52, BY-220052, Republic of Belarus, E-mail: vladimir.kachan.1958@gmail.com



Fig 23. Meter mark of the Netherlands 1953 with an advertisement for 'Eulan' moth repellent



Fig 24. Meter mark of the Netherlands 1964 with an advertisement for the chemical agent for protection against moths 'Mitin'



Fig 25. Meter mark of Germany 1967 with advertising aerosol brand 'Jacutin' to combat harmful moths