instar and pupae, 0.1 for adults and less than 0.1 for the other life stages. Head capsules which had been shed during molting were similar in width to live specimens.

Larval weight increased approximately 5 fold during each of the 2nd, 3rd, and 4th instar periods. The 5th instar increased in size and weight but lost much of the increase during pupation. Adults weighed 0.4 times as much as did the pupae, and 1st instar larvae averaged 0.9 times as much as the eggs. A greater proportion of weight was lost during the transformation from 5th instar to adult than during eclosion.

LITERATURE CITED

BODENHEIMER, F. S. 1932. The progression factor in insect growth. Quart. Rev. Biol. 8: 92–95.

DYAR, H. G. 1890. The number of moults of lepidopterous larvae. Psyche 5: 420–422.

PRZIBRAM, H., and F. MEGUSAR. 1912. Wachstumsmessungen an *Sphodromantis bioculata* Burm. I. Länge und Masse. Arch. Entw. Mech. d. Organismen 34: 680–741.

TAYLOR, W. E., and R. BARDNER. 1968. Leaf injury and food consumption by larvae of *Phaedon cochleariae* (Coleoptera; Chrysomelidae) and *Plutella maculipennis* (Lepidoptera, Plutellidae) feeding on turnip and radish. Entomol. Exp. & Appl. 11: 177–184.

QUAINTANCE, A. L. 1898. Three injurious insects. Bean leaf-roller. Corn delphax. Canna leaf-roller. Fla. Agr. Exp. Sta. Bull. 45: 49–62.

WHAT'S YOUR COLLECTION WORTH

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In discussing the value of a collection of Lepidoptera we must first define "value" by some criterion. We can first consider its monetary value: the amount spent on materials, storage equipment, library, and the procurement of specimens; and also the fair market value if it were to be sold to a dealer, private collector, or institution. Next, there is the sentimental value to the collector. Most collectors probably value their collections far beyond a fair market value simply because of all the hours of sweating, searching, panting, itching, squinting, cursing, and joyful whooping that accompany the perfect avocation. Finally, we shall discuss the scientific value: what information useful in taxonomic and faunistic research is intrinsic in the collection? The scientific value can sometimes be related to monetary value; but, too often, institutional collections cannot afford to purchase highly desirable collections, and must rely upon donated material for research purposes.

The monetary value of a collection depends upon several factors, most important of which is the quality of the material. Large collections, containing showy and unusual exotic species, should command a good price among the few dealers who buy and sell Lepidoptera. Material from poorly-collected areas, unusual forms, type specimens, and unusual, well-labeled perfect butterflies and moths will be in much more demand than a small local collection of common species. There can be no fixed price for specimens because of the variables of quality, rarity, and attractiveness as well as supply and demand; but one can compare his material with that offered at various prices by dealers to get some estimate of value, whether for pricing his collection, or for evaluation for insurance purposes. Likewise, books and equipment can be evaluated by checking dealer price lists.

One can realize monetary benefits by donating his collection to a major museum or university collection. He can include the value of donated material in the "miscellaneous contributions" section of Itemized Deductions on his income tax returns. In checking with the Internal Revenue Service, I found that IRS normally accepts the value placed on such donations by an official of the recipient institution who will prepare a statement of value for the donor. From experience and also in checking with an official of one of the nation's largest museums, I know that $.15 per specimen is an acceptable average value for insects. I would think that one could justify a slightly higher amount for spread Lepidoptera, because of the time put into setting. Also, rare or otherwise extraordinary specimens can be given much higher individual evaluations.

With respect to sentimental value, one cannot place a price tag on the aesthetic enjoyment, friendships, and personal satisfaction of building a fine collection. This intangible value is extended to others when they see your specimens, hear you give a talk, or become stimulated to begin or recommence collecting themselves. Although many collectors are satisfied to keep their collections to themselves, I feel certain that those who share their knowledge and experience reap much greater rewards. The pleasure of excited responses from the uninitiated as well as fervent discussion with fellow aficianados is its own reward.

The scientific value of a collection depends first upon the completeness and accuracy of the data on pin labels or papers. Again, the rarity of species, localities represented, and amount of type material are factors important in determining what potential information the collection holds. Condition of specimens is important, too; but it is not nearly as important to the scientist as the dependability of the data furnished by the collector.

Unfortunately, there are many collectors who do not know that a speci-

men without locality and other collection data is worthless to the researcher. Others are careless and get dates and localities confused, or deliberately mislabel specimens to enhance their prestige or line their pockets. The notorious Chokoloskee, Florida, material is a good example of the latter. Although some collectors will always be content to merely place showy specimens in Riker mounts for their walls, I feel most would prefer to prepare a collection that is scientifically as well as aesthetically valuable. And the knowledge that scientific usefulness will also enhance monetary value should act as an additional incentive to prepare accurate labels and keep a field notebook.

Even small local collections can have significant value to science when properly prepared. In many states faunistic knowledge is extremely limited. With more and more land coming under the bulldozer, it is important that as much faunistic work on Lepidoptera as well as other biota be completed as soon as possible. Since professional biologists often have little time for collecting, the role of the amateur in contributing information for taxonomic and faunistic studies is increasingly important.

Sadly enough, many fine collections are lost to science because the collector failed to donate his collection while alive, or arrange for its proper disposal in his will. One important North Carolina collection faded away in display cases in the hallway of a state building; others end up nourishing dermestids in high school labs or family attics. In order to prevent such a loss of your collection, I offer these guidelines:

1. *Keep your collection in good order.* This includes proper labeling (avoiding "coding" of specimens, and poor quality paper and ink), and storage in air-tight, regularly-fumigated containers away from excessive light and moisture.

2. *Donate your collection while you are alive.* If you are no longer actively working on your collection, give it to an institution (or actually incorporate it in person) so that accession will be most efficiently effected. In so doing, you may reap a tax benefit, recover storage equipment to sell or give to a promising beginner, and feel secure that your specimens are in responsible hands of your own choosing.

3. *Spell it out in your will.* If you do not donate your collection now, be sure that you have provided for it according to the laws of your state. Explicit additional directions can be left in writing to aid the recipient in understanding any confusing aspect of the collection; or, better still, arrangements can be discussed with the recipient in advance.

4. *Choose an appropriate recipient.* Although you may prefer to give your collection to a colleague, it is usually better to donate or bequeath it to a large museum or university collection where proper care and use of

your material are assured. Beware of institutions where "perpetual care" is uncertain.

There are certainly other helpful ideas to aid you in evaluating and utilizing your collection for more than the mere pleasure it gives you in making it. With foresight, careful planning, and proper care you can be assured that your collection will be studied and enjoyed long into the future, and that you have made a real contribution to our growing knowledge of Lepidoptera.

THE IMMATURE STAGES OF *SCOPULA ANCELLATA* (HULST) (GEOMETRIDAE)

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While working in the Hedley, British Columbia, area in 1967 I collected several adults of *Scopula ancellata* (Hulst) between July 4 and 12. One of these moths laid 112 eggs. As in other species of *Scopula* (McGuffin 1967) the eggs were laid loosely on the floor of the cage or on pieces of dead grass scattered over the floor of the cage. After eight to 10 days the eggs hatched. The first-instar larvae accepted the foliage of white sweet clover, *Melilotus alba* Desr., Chinese elm, *Ulmus pumila* L., and mountain alder, *Alnus tenuifolia* Nutt. Some of the larvae completed development and pupated in about 40 days. From these pupae, six males and two females emerged September 4 to 17, 1967. The great majority of the larvae however, ceased feeding towards the end of the summer. They were buried in glass containers in the soil on September 30, 1967, and dug up on May 12, 1968. Most of the larvae were dead when examined but a few survived. From these a male and a female emerged June 27, 1968.

DESCRIPTIONS OF IMMATURE STAGES

Egg: Longer than wide, with longitudinal ridges and cross striae. Whitish to light brown when first laid, later with red spots. Length, 0.75–0.80 mm; width, 0.34–0.50 mm.

Larva: **First instar.** Length, 3–4 mm; width, 0.2–0.4 mm. Head: Width, 0.28–0.34 mm; brown. At higher magnification (100×) herring-bone pattern evident on parietal lobes. Body light brown, with dark-brown dorsum and venter (Fig. 1). **Second instar.** Length, 5–8 mm; width, 0.4–0.5 mm. Head: Width, 0.36–0.40 mm; light brown, with fine brown markings in herring-bone pattern on lobes. Body light brown, with dark brown dorsum and venter; small brown patch on A1–A5, inclusive, between setae L2 and SV2. **Third instar.** Length 9–10 mm; width, 0.5 mm. Head: Width, 0.48–0.50 mm. Colour pattern of head and body as in second