

SCARABS

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Occasional Issue Number 12

Kung ang amoy ay mabaho, sila ay darating

July, 1995

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A Simple Device for Extracting Scarabaeidae and Other Coleoptera from Sand

by Delbert LaRue

Many rare and highly sought after Scarabaeidae can only be collected from cryptic habitats amid sand dunes or similiar sand deposits by carefully working through samples of the substrate (for example *Aegialia*, *Psammodius*, and some species of *Aphodius*, to name a few).

A classic method is to take a shovel of sand, drop it into a bucket of water, and let the prevalent quarry float to the top. This is a good technique if you are collecting in riparian habitats where water is readily accessible. But what if you are on the backside of a major dune mass in search of a new species of psammophilous scarab? Water is not available, and who wants to lug a bucket of splashing water, at eight pounds per gallon, over dunes? A convenient, lightweight device that would enable you to sift through sand effectively would be advantageous.

I present below the construction of a simple, yet useful tool to dry sift sand. (I know, you’re probably saying to yourself: “Oh no, not another La Rue construction article.” This one is cheap, and easy. Trust me.) It consists of two sheets of different density common wire screening attached to a rectangular wooden frame (Fig. 1).

I gave the “acid test” to this device a few years back at Big Dune, Nye County, Nevada. This is the type locality for *Pseudocotalpa giulianii* Hardy which was my main object of endeavor. I was also aware that other significant Scarabaeidae existed within the sand as well, for example *Aegialia magnifica* Gordon & Cartwright. Since I had arrived at the

site in early afternoon, and the *Pseudocotalpa* would not emerge for several hours, I began sifting the sand at various locations and ecotones. The most productive of these was below *Petalonyx thurberi* (Sandpaper Plant) which was abundant. After about two hours of sifting, with several breaks in between, I had accumulated a nice series of *Aegialia*, *Diplotaxis*, *Pseudocotalpa*, and a myriad of “tenebes.” I spent the rest of the afternoon relaxing in the shade, catching up on recent literature. After all, I had the peace of mind knowing that if the *Pseudocotalpa* did not emerge (or if I “cunninghamed” and was at the wrong sand dunes), a little effort with my sifter had provided a nice series of specimens.

WHAT YOU’LL NEED

TOOLS:

Skill saw, hand saw, or table saw (either).

Power drill with phillips screwdriver attachment (Yes, a hammer and nails will work, but wood screws are recommended), and a

Hammer.

MATERIALS:

8-foot length, pine 1 x 2 inch (“furring strip” will work).

84-inch length (seven feet), 1/2 x 3/4-inch pine (recommended, but optional).

1 piece 18 x 24-inch, 1/2-inch hardware cloth.

1 piece 18 x 24-inch, common aluminum window screening (Do not use the space-age plastic screening).

“Handful” of #14 or #16, 1-1/2 inch phillips head wood screws (or drywall screw equivalent).

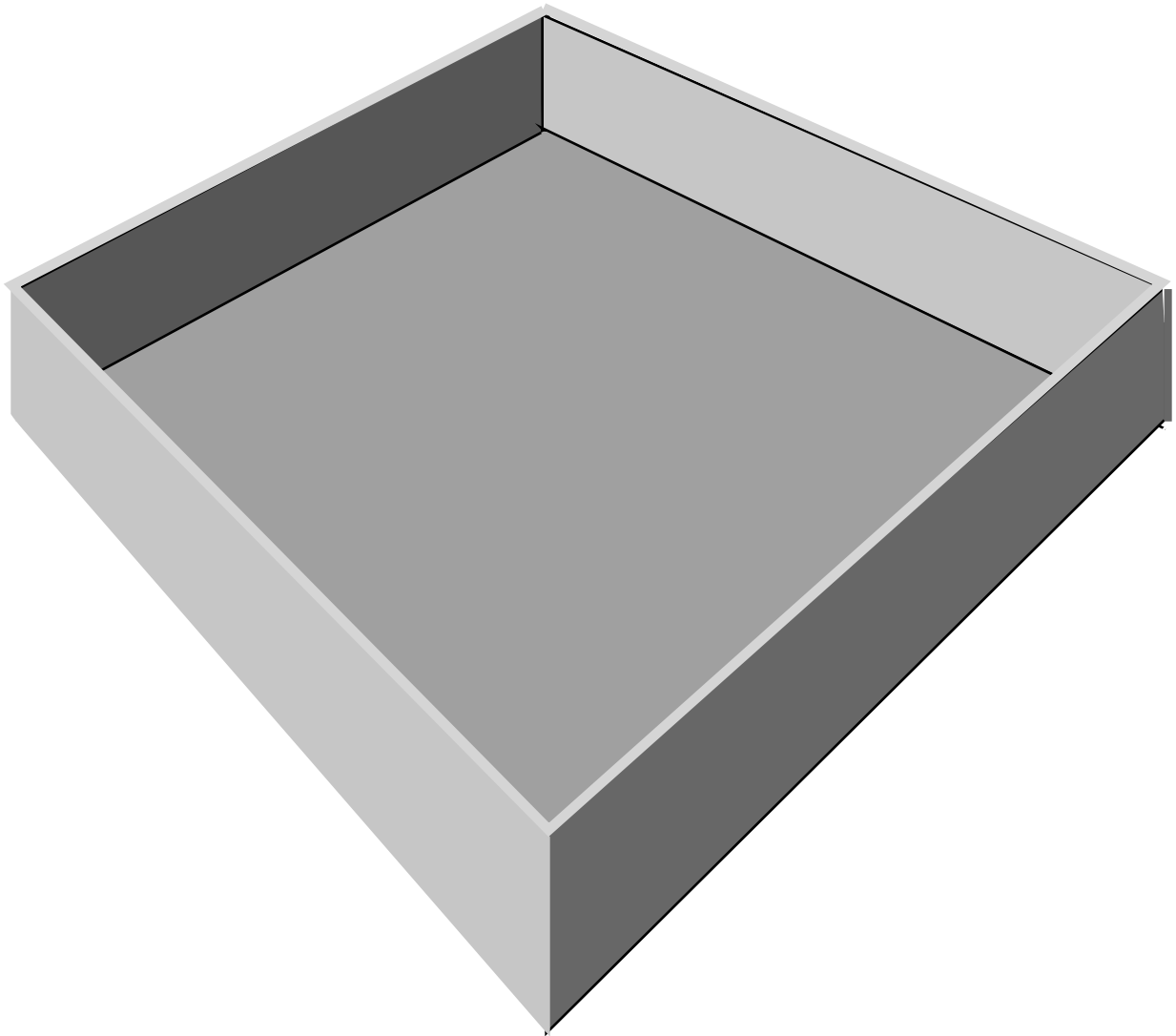


Figure 1.

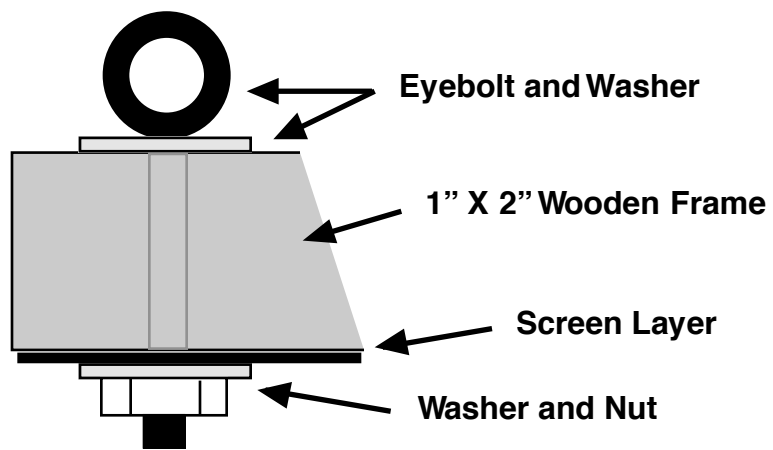


Figure 2.

“Handful” of 1-inch galvanized roofing nails.

Wood glue.

Medium-grit sandpaper.

CONSTRUCTION.

From the 1 x 2, cut two pieces 16 1/2-inches long, and two pieces 24-inches long; discard the scrap. Using wood screws and plenty of glue, assemble a rectangular frame with the dimensions of 18 x 24 inches. (Remember, the “nominal” size of the pine is one inch, but actual measurement is 3/4-inch).

Next, place the 18 x 24-inch piece of window screening to the proper alignment on the wooden frame; then the piece of 1/2-inch hardware cloth of the same dimensions on top of that. Make sure both are centered around the perimeter of the frame and attach with roofing nails every three or four inches.

OPTIONAL: A wooden strip of about 1/2 x 3/4-inches nailed on top of the screen/hardware cloth around the perimeter of the frame will provide additional support. Wood of these dimensions can be found in the moulding section of the lumber yard or home center; or you could use a 1 x 3, instead of the 1 x 2, and rip a 1/2-inch or so from one side on a table saw. Remember to use lighter gauge nails, or drill pilot holes, so the narrow, thin wood will not split.

The window screening is the primary sifting layer with the heavier hardware cloth merely a support. I chose 1/2-inch hardware cloth so sand would readily pass through the sifter.

Using medium-grit sandpaper, sand any rough splintered edges and that's it. Really.

FIELD USE.

The sifter is simple to use: lay the frame, nailed-side down, next to where you plan to excavate; with a hand trowel or spade shovel, throw a fair amount of sand in the center (enough to where you will be comfortable lifting the weight); agitate from side to side. Keep your fingers crossed. Note that most beetles will be at

the damp sand-dry sand interface. Archeologists, paleontologists, etc., take this method one step further. They suspend the sifting device from the center of a tripod. The sifter described above could be modified for this method by simply drilling holes and sinking eyebolts in each corner (Fig. 2). Using chain or rope, you could suspend the tool from a tripod or tree limb.

Editor's Note: A motorized sifter could be easily constructed as follows: Suspend the sifter as above, but attach an electric motor to the frame, which could be run from a portable generator. Attached to the shaft of the motor would be a heavy flywheel which is oblong in shape, or a circular flywheel with its axis hole drilled off center.

Museum of Comparative Zoology

Any serious worker in Coleoptera is already familiar with the Museum of Comparative Zoology, located on the beautiful campus of Harvard University. It is here that the Melsheimer, Henz, Fall, LeConte and Horn collections are housed. Probably a third or more of the type specimens of US scarabs can be found in this one room.

What is left of the Thomas Say collection is also here. Most of the Say collection was apparently destroyed in the early 1800's, but types of the following scarab species (most full of dermestid skins) survived: *Canthon humectus*, *Onthophagus incensus*, *Canthon viridicatus*, *Copris incertus*, *Copris prociua* (=friticator), *Anomala cincta*, *Anomala gemella*, *Trox tuberculata*, *Trox capillaris* and *Trox scutellaris*.

Because of the importance of these collections, coupled with the fact that many type specimens are housed in the same drawers as the rest of the specimens, makes the Museum very careful (nervous) about whom they admit.

It is imperative that you call or write before you show up. Contact Dr. Phil Perkins, Department of Entomology, Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts 02138, or telephone (617) 495-

2464. You may be asked if you are engaged in a research project, or for references. Remember, use common sense. If you say you know one of the editors, you will no doubt be blacklisted for life! Specimens of unusual aquatic Coleoptera, Dr. Perkins' specialty, would surely be appreciated should you have any.

If you are visiting and staying in the Boston area, by all means take the Red Line of the “T,” the local subway system. Get off at the Harvard (Square) stop and ask, “Where are the glass flowers.” Locals will be able to easily direct you to the Museum. Parking is by meter, with a measly two-hour capacity per meter, and traffic can be difficult in the summer. The building is actually on Oxford street, a ten minute walk from famous Harvard Square and the Harvard T-stop. When you arrive, enter the staff entrance to the left of the public entrance. The public entrance leads to a very nice museum devoted to many phases of natural history, including an incredible collection of botanical specimens made from glass. Admittance is \$4 for adults. Once inside the staff entrance, go up the stairs to the fourth floor, check in with the staff, then go to room 407.

The Scarabaeidae are housed within 14 25-Cornell drawer cabinets and two 12-drawer cabinets. The scarab portion of the Fall collection is to be found here, within the general collection. Special note to James Saulnier: there are 15 drawers of *Aphodius*! Nearby is the 44-drawer “Beetlemania” collection which is loaned out to various groups and institutions for public viewing. It is an annotated display of unusual and exotic beetles of many families.

Around the perimeter of the room are the LeConte and Horn collections, housed in 25 25-drawer cabinets. The scarabs alone take up 40 drawers, the Cerambycidae run 44 drawers. A key is supplied to decipher the colored-paper pieces found on the LeConte specimens. They indicate geographic localities. The Say and Melsheimer and Ziegler collections are placed at the end of the LeConte and Horn collections.

Beyond the scarabs themselves, the MCZ is perhaps the single best spot in

the US for finding old and rare scarab literature. The MCZ library is two floors below the collection and has literally tons of old journals and rare books in the "stacks." The library staff is abnormally courteous and helpful, and photocopies are still only a nickle! You will have to obtain a visitor pass from Dr. Perkins to gain entry to the library, however. In addition to the MCZ Library, the beetle room itself houses hundreds of shelf feet of reprints on beetle systematics, including Fall's personal reprint collection which is hard bound into about seven shelf feet of 2" thick volumes entitled *Coleoptera of the US*. This set has nearly all the US scarab literature up to about 1930. This one is worth visiting!

Entomology Supplies

The following are names and addresses of supplies that may be of interest to entomologists:

Lane Science Equipment Corporation
225 West 34th Street
New York NY 10122
(212) 563-0663
Maker of cabinets.

J. H. Dunning Corporation
North Walpole NH 03609-0510
(603) 445-5591
Cornell drawers.
Recticel Foam Corporation
P. O. Box 0028
Le Roy NY 14482-0028
(716) 492-5372
Foam pinning material.

T. James Clarke
45-53 Norwood Avenue
Jamestown NY 14701
(716) 487-1958
Unit trays.

Ianni Butterfly Enterprises
Cleveland OH 44181
(216) 888-2310
(216) 888-9763
Insect pins.

Morpho Ventures
175 Humphrey Street
Marblehead MA 01945
(617) 581-5904
Insect pins.

The Mason Box Company
521 Mt. Hope Street
P. O. Box 129
North Attleboro MA 02761
(508) 695-9381
Shipping boxes with wire loops fastening the lids.

Notes on Southwestern U.S. Scarabaeidae. # 1.

By Delbert A. La Rue

This is the first in a series of brief informal notes concerning southwestern U.S. Scarabaeidae. They are based upon field data I have accumulated over several years. Hopefully, these notes will provide additional knowledge toward understanding the bionomics and distributions of those species considered as well as to encourage others to publish similar information.

Cotalpa ashleyae La Rue

This species remains poorly represented in collections and significant bionomic information is lacking. The type locality (AZ., La Paz County, Junction of Interstate 10 & Wickenburg Road, diesel facilities) is located in an vast area of *Larrea* (Creosote Bush) and has undergone several man-made alterations including grading, demolition, partial abandonment and public closure. Whether these disturbances have negatively impacted the dynamics of the *C. ashleyae* population has not been ascertained.

At the type locality, adults emerge in August after the area has received significant monsoonal precipitation (personal observation). Many of the mercury vapor lights that attract specimens are no longer in service or have been removed. However, there are several dirt roads adjacent to the site that provide access to ecologically similar pristine habitat. These areas should be investigated and may prove to be far more productive for this species.

Data from a single example of *C. ashleyae* located within a unit tray of *Cotalpa consobrina* Horn provides an eastward distribution: AZ., Yuma

County, 31 miles SW of Tonopah, 29 August 1969, J.A. Gruwell collector, at blacklight (California State College, Long Beach collection). The specimen agrees in all diagnostic respects to topotypical material. Closer examination of consobrina specimens from northerly localities (e.g., La Paz, Yuma and Maricopa Counties) may provide additional examples of *ashleyae*.

Thanks to E.L. Sleeper (CSCLB) for the privilege of examining material under his care.

Take the Beetles

(A Road Ditty, With Apologies to the Eagles and Jackson Browne)

By Larry Bezark and Dave Russell

Well we're runnin' down the road with a
Great Basin Toad
We've got seven beetles on our minds
One that's called *diffRACTA*, three we
haven't found yet
and that there damned *ratcliffE*

Take the beetles, take the beetles
don't let the sound of your 350 drive you
crazy
Light it up while you still can, we drove
like hell to reach the sand
so find a spot to place your stand, and
take the beetles

We were standin' at a rest stop, Tuba City
Arizona, such a sad sight to see
It's a man named Rich in a Bronco Ford,
slowin' down so he can take a pee

Come on Richie, we're gettin' itchy
I gotta know if your new map is gonna
save me

We may lose or we may win, so throw the
beetles in nitrogen
we need some more that we can pin
So take the beetles

The Aerostar is packed, Dave and Larry
keepin' track
of seven thousand miles on their minds
Using all their permits, the rangers are
like hermits
they're so oh hard to find

Take the beetles, take the beetles
don't let the sound of your 350 drive you
crazy
Pick them up fast as you can, cause you
don't wanna go there again
with the glare, the sun and the wind
so take the beetles
Come on Larry, it's lookin' scary
I've got a feelin' this new map is gonna
fall me

The Optima 800 Battery

By Ron Alten

While “duffing” out *Pleocoma australis* with Delbert LaRue on San Savaine Ridge of the San Gabriel Mountains of southern California, we got into a scholarly discussion on the physics (and metaphysics) of storage batteries, especially pertaining to the cold-weather collecting habits of Pleocomaniacs.

Old timers (those who have read *Sacrabs* Occasional Issue #1) may remember a great little deep cycle battery that I recommended to the editorial staff, who included it in their discussion of a portable DC blacklight setup.

Now, there is a *greater* little battery, the Optima™ 800 sealed commercial battery. This little guy measures 9 5/8” long, 6 3/4” wide and 7 13/16” high. It has up to four times the capacity of regular batteries, has lower internal impedance (which translates to exceptional low temperature performance—down to -40° C.), and discharges more slowly, which provides longer shelf life and more spare power. The 800 in the name stands for 800 cold cranking amps, yet, it charges using the same settings as a conventional battery.

Buffalo Dung—Not Taste Good?

By Charlie Wolf

For some time I have been intrigued by the question of what species of scarabs, if any, were partial to buffalo dung. Last summer, thanks to the kindness of Mike Griswold, a naturalist at the Ft. Worth Nature Center, I was able to investigate.

There is a small herd of buffalo at the Center, kept in a closed range since 1974. Mike and I examined probably 100 dung pads, which are present in numbers in open areas of the range. The dung is not loose like cow manure, but remains in a small pile until it dries. We found no insects of any kind in the dung. There were ants under some of the pads, but they were obviously not using the dung for food. Further, there were no pads fragmented by birds, which is usually the case in areas with many cow patties.

This poses the questions, “Were there any scarabs partial to buffalo dung in the days when there were huge herds in the Great Plains?” and then, if so, “What happened to them when the buffalo were decimated?” If there were no scarabs with this particular preference, it would seem that the Indians must have been up to their - uh - breechcloths in buffalo poo.

I would be interested in hearing from anyone who has information on this subject. I can be reached at 7725 Trail Ridge Drive, Fort Worth, Texas 76179.

Ed. Question: Charlie, wouldn't it be a lot easier, simpler and faster to get out there and just taste the stuff for yourself? They call 'em buffalo chips don't they?

“Scarab” Redefined

By Bruce Gill

The 1979 edition of Webster's Dictionary contains a couple of baffling definitions:

bee *n.* highest form of insect belonging to the order Hymenoptera.
scarab *n.* beetle regarded by ancient Egyptians as emblematic of solar power; gem cut in shape of this beetle

Now, though obviously written by an unabashed apiarist (albeit misguided entomologist), we all know that the true “highest form of insect” and genuine solution to our future energy needs, is of course the scarab. Note that since “scarab” is a multisyllabic word, it is clearly superior to “bee.”

Malaysian Dung Sniffers

By Bruce Gill (Skip' in Ottawa,
Your Roving Reporter,
With a Nose in the News)

A newspaper article I read recently notes that drug addicts in Malaysia, hit by a supply shortage of cannabis and heroin, have discovered another way of getting “high.” They wait for fresh cow dung and quickly put a coconut shell over it, sniffing the gas through a hole in the top of the shell.

It is hoped that a few dedicated individuals (perhaps someone out there in the Land of the Fruit and Home of the Nut) might devise a method to disprove this hypothesis of “Cow Pie Highs” and thereby lay to rest these vicious rumors that soil the good name of our most cherished Coleoptera.

As an afterthought, if those Malaysian cattle were snacking on poppies or some other sort of roadside weed, their... “digestive biscuits” may indeed have more than just a heady aroma. Of course all this is mere supposition, but even if substantiated, the noble Scarabaeinae may remain innocent of all allegations. Faced with the presence of contraband piles, the simple possession of spiracles could ensure that they never inhaled!

(Ed. Note: We have absolutely no proof regarding the report that a delirious Skippy was discovered in a cow pasture with a coconut shell still stuck to his nose, arrested and jailed by the Ottawa Police Department.)

Phanaeus Revision... Finally!

Despite their popularity with collectors, the genus *Phanaeus* has been in need of a revision for quite some time. Though specimens are not small in size, and the genus does not contain a huge number of species, the revision presented some tricky systematic problems.

We are happy to report that “Revision of *Phanaeus* Macleay, A New World Genus of Scarabaeine Dung Beetles (Coleoptera: Scarabaeidae, Scarabaeinae)”

baeinae)” by W. D. Edmonds is now available. Each species and color variation is depicted in color. This revision is 105 pages in length, a result of many years of exhaustive research, and a “must have” for all interested in Scarabaeidae.

It can be ordered from: Museum Book Shop, Natural HIstory Museum of Los Angeles County, 900 Exposition Blvd., Los Angeles, CA, U.S.A. 90007, telephone (213) 744-3434, for \$30. Shipping is \$4, or 10% of the total for orders more than \$40. California residents must include 8.25% sales tax. American Express, Visa and MasterCard are accepted. Ask for *Contributions in Science* Number 443.

It is our hope that Dave will not stop here, and put his considerable knowldge and talent to work on related groups such as *Coprophanaeus* and *Sulcophanaeus*.

More Efficient Gopher Inquiline Trapping

by William B. Warner

Paul Skelly (see *Scarabs* #6) gave us an excellent treatise on the art of dung trapping for inquilines in pocket gopher (*Geomys*) burrows. The basic method is to open a gopher burrow, trap out the gopher, set a standard dung-baited pitfall trap (see *Scarabs* #2) in the burrow run, cover the hole with a board and then cover the board with soil so that the “burrow atmosphere” is left intact. Inquilines are attracted to the dung odor (which presumably mimics a gopher dung chamber) and are trapped in the pitfall just as are surface generalist dung beetles in normal dung traps.

After several years of Paul’s encouragement (boy, is that word politically correct!) and my son’s constant begging to go collecting even though it was Thanksgiving, we finally set a few traps in *Thomomys bottae* gopher burrows near Phoenix last winter. The first few attempts consisted of only occasionally catching a gopher, setting the dung traps anyway and returning a week later to find all the traps buried. After a while, this changed to making a trip on Saturday to check the previous week’s dung traps,

setting gopher traps, and then returning Sunday to set dung traps in burrows where gophers had been trapped during the night. Even when a rodent was trapped out of the burrow, however, about three out of five traps would be buried when they were inspected the following Saturday.

Still, the occasional unburied trap, as well as some buried traps (via sifting and floating out the beetles) yielded several *Aphodius ruficlarus*, one *Aphodius luxatus* Horn, and one specimen of a new (?) *Aphodius* near *rubiginosus* Horn. Encouraged by collecting the latter two species, we again started up the Saturday-Sunday routine this winter. Blowing part of both weekend days rapidly became a little cumbersome, however, especially when so often another gopher would still bury the trap after one or more gophers had already been trapped in the same burrow!

Finally, to protect the dung traps, I tried leaving gopher traps stuffed in the burrow entrances to the hole in which the dung trap was set. The gopher traps did not seem to impede the beetles at all, and after a week of trying this, I bought more gopher traps and switched to once-a-week trips, setting more gopher traps and dung traps at the same time. Surprisingly, dung traps in burrows with trapped gophers seem to actually catch more beetles!

The results of switching to the “both at once” method: long series of *Aphodius ruficlarus* and *A. luxatus*, a good series of the *A. “near rubiginosus,”* several *A. rudis*, and a dozen specimens of yet another *Aphodius* (*concausus* or new species near), gobs of inquiline staphylinids, long series of *Onthophilus soltau* (a histerid previously known from only two specimens, collected in the Great Plains) and series of *Geomysaprinus*, another histerid genus. The inquiline *Aphodius* are usually present even in gopher burrow systems in urban yards and fields, so burrow trapping can provide our readers in “gopher country” with interesting year ‘round collecting, literally in their own back yards.

And, please remember to report your “in burrow” *Aphodius* captures to Bob “yes, aphodiines are cool” Gordon. Bob has

now retired from public service at the USNM and plans to finish up work on his U. S. *Aphodius* revision, as well as other projects at a more scenic local. You can now reach him at: Dr. Robert Gordon, P. O. Box 65, Willow City, ND 58384.

Chitin Killer’s Calendar

For those readers who do not have access to an almanac, *Scarabs* is proud to supply you with our 1995 Chitin Killer’s Calendar, the complete guide to “when” for this year’s collecting season.

The “begin” date is the night of the month on when the moon rise begins after 10:00 p.m. (11:00 p.m. during daylight savings time periods and locations), yielding at least a couple hours of dark skies and good collecting.

The “end” date is the first night after the new moon when the moon set is 10:00 p.m. or later. The moon on the “end” date is at most 1/8 full.

Ultraviolet and mercury vapor lights will attract more scarabs during moonless periods, so any nights between the “begin” and “end” dates in the table below should provide good light trapping, assuming other conditions such as moisture and temperature are in the correct range.

Month	Begin	New Moon	End
July	15	27	31
August	15	25	30
September	14	24	28
October	14	23	27
November	12	22	25

In the Next Issue...

In the “Tools for Fools” Section: The Plague Scooper 2000™! Finally, an explanation of those strange words under Editor Bill’s name!! And more!!!