

dollars paid for raw materials. The development of the model of the nervous system has already been described, and now the structure of the heart is being worked out. Embedding fragile material in clear plastic is another popular project that gives the class material that is easily handled.

5. **The biology club is a tool for developing visual aids for classroom use.** Films have been taken of our club activities, especially those that illustrate correct conservation methods; and of those that illustrate techniques and results of various other projects. Photomicrography has also added beautiful Kodachromes to the collection. The films when used in talks before local service organizations are a popular stimulus for better relations between the school and community.

6. **The biology club is a tool for stimulating original research among its members.** Such things as cancer, owl pellets, wood duck nesting, maze experiments with rats, hydroponics, and highway slaughter of animals have served as research topics. Not only does the whole class become interested in these research problems, but as in the case of highway slaughter many students outside of the biology class aided with their observations. In addition science club projects develop the interest of outstanding students beyond the one year in the biology course.

7. **The biology club is a tool for helping young people to find out whether their life work should be in certain fields of science.** Pre-nursing, pre-surgery, laboratory technique, forestry, wildlife management, and teaching are all vocations that club members may investigate. Project activity in the club gives practical experience in the field that the student wishes to consider.

8. **The biology club is a tool for keeping the instructor abreast with the latest developments in science and preventing boredom in repetitious textbook material.** The club activity that has been described is one way of keeping the better type biology teacher from leaving the high school field and moving into college. No teacher can suffer from boredom when surrounded by members of an active biology club, eager to delve into the mysteries of science. Our club is a living, vibrant organization, radiating interest and activity about which the whole biology course revolves.



The Biology Club maintains animals that are useful in class. *Left:* Don Gilkison feeding a mother rat. *Right:* Dick Carlson feeding a mother rabbit.

Biology Laboratories

By: "The Old Fossil," at Wells High School, Chicago

Obituary Notice! "Biology Laboratories" died July 4, 1953 at Chicago; nearest of kin, "The Old Fossil." B L will be formally decapitated come midnight, Dec. 31, 1953. Ed'r Vance issued this edict to TOF—"Get ahead with a new Head, but make it catchy-snappy, Grandpappy! So TOF must do a bit of osteological plastic surgery, and **YOU** can help. The title, *Biology Laboratories*, is threadbare, obsolete, antiquated—in brief, it just plain stinks! Here are some substitute suggestions: *Biological Diary*; *Biological Brieviews*; *Bio-digest*; *Biodust*; *Bio-meants For Comments*; *Nurturing Nature*; *Planimal Pointers*; *Bio-plans for Pupil-Pushers*; *A Biological Em Pica or Two*; *The Old Fossil's Column*; and *Bioliving*. Or do you want the column at all? To prevent TOF from going down the drain with B L, write TOF and suggest a new title, or choose from the preceding list. Also send in a suggestion or two for the column, and your reaction to it. Do it now! Reward for your effort will be a special Honorary Degree and Certificate, suitable for framing. TOF still has a bit of paper board up the sleeve of his shroud. Address: "The Old Fossil," 5061 N. St.

Louis Ave., Chicago 25, Ill. New-broom Editor Vance asks for many "**How To Do It's**" in this column. I hope there are a few here. TOF must now hasten back to his limestone strata niche (as Muriel B. so deftly put it in a recent letter to TOF).

TOF apologizes for the delay in sending "Thirteen Snake Superstitions." Duplicates were finally made from a file copy. Copies were sent this summer to **Sister Maria Laurence**, Marywood College, Scranton, Pa., and to **A. V. Donnellan**, Jamaica Plains H.S., Boston, Mass. Ed'r Vance, this is a splendid "How Not To Do It!"

A nested aluminum mess kit, consisting of one pie tin and one frying pan w/handle—both 7" in diameter, cup w/handle, and one 5" pot w/bail is available at your local scout depot; excellent for field trips.

White rats, produced commercially by the hundreds of 1000's monthly, come from but a very few ratteries in the U.S., and fewer abroad. Last spring **Paul D. Henderson** invited TOF to a rattery in Madison. PDH and TOF were not permitted to view the rearing room, but did see such a new room being constructed. 25,000 rats per month are shipped. The strain is started by sterile **Caesarean operation** to prevent contamination. They live under artificial, hygienic, and sanitary conditions, and are mated by free inbreeding for uniformity. The strain usually lasts four to five years. When variations begin to appear, a new strain is started again by Caesarean section. Standing orders are booked months in advance. Some researchers maintain full orders from two separate firms in case one strain "goes haywire." The technical know-how is more closely guarded than in an atomic plant.

Fifteen scientists, including TOF, were invited to visit the **Argonne National Atomic Laboratories**. Personnel data were submitted weeks in advance for security investigation. A motor caravan took the group from the main laboratories and administration building to the top of a hilly area a few miles distant, which was fenced and brightly lighted. TOF presented identification, was checked on a large data sheet, badged, and handed a radiation counter for use at the reactor-piles. Experimentation is not carried on at the two piles visited, one graphite and the other heavy-water. The **graphite pile** was a huge block of concrete the size of a 2-story 8-room house. An hour was spent in the control room of the heavy-water pile. Controls, and controls to check controls, were located in the walls of this room; there were dials, lights, warning signals, and recording devices, all electronically operated. The group then moved to the **heavy-water pile** room, where materials are placed in small holes in the walls to be radiated. The group saw a number of mice being subjected to reactor radiation. Security is essential. Guards

were present everywhere, except about the piles, and the area is continually patrolled. One single act of carelessness could contaminate the whole area and endanger thousands of lives. A visit to such a place is a real education for teachers.

Snow White, the junior member of the firm's pet rabbit, is wintering in the Florida climate of the animal room here at Wells. Liked foods are lettuce, endive, carrots, asparagus tops, and pea vines in that order. Cabbage and apples are at the bottom of the list. Rabbits will eat grain and prepared pellets when fresh food is not in abundance.

Honeybees produced a good crop for TOF this year. He started out last spring with one colony and ended up with many. Bees played an important part in his summer activities. One learns about insects very rapidly from honeybees—often the hard way. 95% of a person's aversion to honeybees is his fear and lack of understanding of bees. The other 5% is the bees' disinclination to be disturbed from their routine.

TOF has had good luck pollinating **amaryllis**, producing seeds, and rearing plants. Two choice blooming plants are selected. Pollen transfer is completed. In a fortnight seeds are formed. These are generally sown around the base of some newly potted plant which will not need shifting for a couple of years. More than one season of growth is necessary to produce bulbs. You will notice the broad leaf of the seedling when germination is complete.

Adhesive tape, folded over one edge of a double-edged **safety razor blade**, converts it into a less dangerous instrument. Metal and plastic holders can be bought cheaply at variety stores. Plenty of used blades can be had for the asking from pupils with safety-razor-brandishing fathers or brothers. Put a notice of your needs for such things on your blackboard or the school's Morning Bulletin. An empty wooden **chalk box** is fine to hold sharp instruments too dangerous to be put loosely in a drawer; force the points into an end of the box.

Eugenics Pamphlets, No. 66AA, 16 pp., is free to schools while the supply lasts. Write to NABT Adviser **C. M. Goethe**, 720 Capitol Bank Bldg., Sacramento, Calif.

Lawn Care, house organ of O. M. Scott and Sons Co., Marysville, O., may be had free. It is of interest to lawn enthusiasts, and good

for special reports and experiments. Congratulations to **the Scotts** on 25 years of continuous publication!

Dissecting pans can be repaired. Remove the black tar-based wax in pieces, and put on newspaper to dry. Discard pans which leak or are badly bent. Restore others to shape by using a wood block and hammer. Clean and set them on a level surface. Heat the wax in a clean coffee can. Do not let it smoke or catch on fire. When melted, fill each pan about $\frac{1}{4}$ to $\frac{1}{2}$ in. deep with wax. They are ready for use when cool. More wax may be purchased, or made cheaply from equal parts of beeswax and paraffin with some lampblack added.

Common Diseases of Livestock, Lederle Laboratories, 30 Rockefeller Plaza, New York 30, N. Y., is a 32-page pamphlet on treatment of animal diseases. It is excellent for special reports on mammals, and is **free**.

The Teaching of Biology in the Public High Schools of the United States, Bulletin No. 9, U. S. Office of Education, Washington, D. C., is a good "sumview" of biology compiled from a questionnaire and fine for your professional library.

Insects, Yearbook of Agriculture for 1952, U. S. Dept. of Agr., Washington, D. C., contains nearly 900 pages of information, 36 color plates of a select group of insects, and descriptions. It is worth a letter to your Congressman, or the nominal price of \$2.50. Excellent for reference.

Cannas are used extensively for home and school plantings. Leave them in the soil until the first heavy frost; lift before the ground freezes solid. Leave soil on the clump, and store in baskets of dirt in the basement. Water once during the winter. Six weeks before the last spring freeze, cut away dead parts, remove soil, and put one growing tip in each of 4 or 5 in. pots. Use a mixture of 2 parts loam, one part leaf mold, and one part sand in the pots. Keep them cool, shaded and inside for three weeks, and water frequently. Then place in full sunlight. Plant out when danger of frost is past. They run to reds, yellows, pinks, and variations. Two or three years work will greatly increase your yield. They bloom from late midsummer to frost time.

An excellent business opportunity is open for one or two biologists. A knowledge of biological supplies is desirable. A small amount of capital is needed to cover materials costs. The business can be operated on a full or part-time basis. If interested, write to "The Old Fossil," 5061 N. St. Louis Ave., Chicago 25, Ill.

Mrs. Hubbard solved the "pencil problem" in her classes by buying several dozen pencils at a time; sells them to "Teacher, I don't have a pencil" pupils at cost; it is effective in keeping chronic "pills" from becoming headaches during class and Lab. sessions. Another teacher sells ink at a penny a fill for student aid; another sells paper two sheets for a cent.

Books For Busy Biologists

MOMENT, GARDNER B. and CLOSE, HELEN V. *Foundations of Biology, A Laboratory Handbook*. Appleton-Century-Crofts Inc., New York. iii + 282 pp. 1953.

This excellent college workbook contains 40 units for laboratory study. Included are classical experiments, recent discoveries, as well as others that deal with fundamental principles. Both plant and animal materials are used.

The first 132 pages give directions under the headings of "Importance and Purpose," "Materials," "Procedures," and "References." The remainder of the book consists of work sheets for drawings and observations.

Anyone using Moment's *General Biology* as a text would find this book very useful. The directions given are helpful for anyone who conducts laboratory courses in general biology.

M. A. RUSSELL,
Junior College,
Highland Park, Mich.

JONES, ARTHUR W. and CARPENTER, JOHN M. *Microtechnique. A Student's Guide to Slide Making*. Burgess Publishing Company, Minneapolis, Minnesota. ii + 39 pp. 1952. No price stated.

A concise spiral-bound paper-covered booklet which gives the essential principles for slide-making. The guide is not intended to be a manual or textbook, but is to be used along with the many excellent manuals and texts in the field. A list of 11 selected, but far from complete, reference books are given in the bibliography. The booklet starts with detailed instructions on the use of the microscope and its accessories and proceeds from there to the preparation of smears, squashes, macera-