and (vice-chairman) Elsa Horn, Kansas State College, Manhattan; *chemistry,* W. W. Floyd, Ottawa University, Ottawa; *physics,* G. W. Maxwell, Kansas State College, Manhattan; *psychology,* J. B. Stroud, Kansas State Teachers College, Emporia; *entomology,* P. A. Readio, University of Kansas, Lawrence; *Junior Academy,* Hazel E. Branch, University of Wichita, Wichita. Additional *members of the executive council* are: Robert Taft, University of Kansas, Lawrence; F. U. G. Agrelius, Kansas State Teachers College, Emporia; L. Oncley, Southwestern College, Winfield. Dr. F. C. Gates, of the Kansas State College, Manhattan, was reappointed editor.

State aid to the extent of $300 a year was reported by the chairman of the state aid committee, Dr. W. J. Baumgartner, of the University of Kansas at Lawrence. The 1934 meeting will be held in Wichita.

GEORGE E. JOHNSON,
Secretary

THE TEXAS ACADEMY OF SCIENCE

THE summer meeting of the Texas Academy of Science was held at College Station, where it was the guest of the Agricultural and Mechanical College. At the banquet on May 19, a class of thirty-three new members, all from the faculty of the college, was introduced to the membership. Following the banquet Dr. Mark Francis, widely known for his work on Texas tick fever and for his interest in the paleontology of the Gulf Coast, delivered an illustrated lecture relative to his findings in Texas. At the conclusion Dr. E. N. Jones, president of the academy, presented Dr. Francis with a certificate of life fellowship. Saturday was given over to three field trips. The botanical section under Dr. R. G. Reeves, of A. and M. College, visited locations where the local flora was best represented. The geological section, headed by Dr. H. B. Stenzel, of A. and M. College, and Professor and Mrs. F. B. Plummer, of the University of Texas, visited some newly discovered fossil deposits near the college. The third section represented a combination of interests and made a tour through the eastern part of the state, visiting various points of biological and historical interest. At the meeting of the executive committee arrangements were made for the annual meeting to be held at Dallas on October 20 and 21, and the invitation of Dr. Edwin F. Carpenter, secretary-treasurer of the Southwestern Division of the American Association for the Advancement of Science, for a joint meeting in May, 1934, was referred to the regular session of the executive committee for consideration.

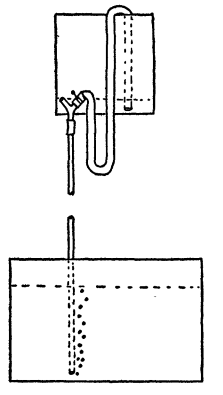
H. B. PARKS,
Secretary-Treasurer

SCIENTIFIC APPARATUS AND LABORATORY METHODS

A SIMPLE AQUARIUM AERATOR

IN the course of the school year it is frequently desirable to maintain aquaria, both of fresh and salt water, for intervals of a week or two. In order to accomplish this some system of aeration is usually necessary, but in many cases one feels that the purchase of an electric pump is hardly justified. Several fairly simple and efficient aerating devices have been described (Schaeffer,[1] Walker,[2] etc.), but they require that running water be available and limit the location of aquaria to within a few feet of a sink. The writer has been using, quite successfully, a very simple aerator, which can be constructed in a few minutes from materials available in most laboratories, requires no electricity or running water to maintain it, needs only a few minutes' attention a day, can not misbehave in such a way as to injure the contents of the aquarium or flood it with tap water, and allows the aquarium to be placed almost anywhere in the room.

Two lengths of glass tubing, one of one eighth inch diameter, the other a size larger; a Y tube preferably the size of the smaller glass tube; some rubber tubing for connections; and a screw tubing clamp are needed. The larger tube is bent in the form of a "constant level" siphon, as shown in the diagram, the inlet end



being bent slightly to one side so that water can enter freely, even when this end rests on the bottom of a container. The Y, preferably a glass one, especially if sea water is to be used, is connected to the outlet end of the siphon by just enough rubber tubing so that the screw clamp can be fitted on between the end of the siphon and the Y. The open end of the Y should stand a little above the intake end of the

[1] A. A. Schaeffer, SCIENCE, 31: 955, 1910.
[2] J. H. Walker, SCIENCE, 73: 709, 1931.

siphon, and as near the level of the top of the outlet bend as possible. The siphon will then need no starting after it has once been put in operation. The second glass tube—the smaller one—is then closely connected to the stem of the Y. This tube should be at least eighteen inches long, for best results. Its length determines the depth to which air can be carried below the surface of the water in the aquarium below, and this drop tube should reach almost to the bottom of the aquarium, so that the bubbled air may come in close contact with as much of the water as possible. A vessel of some kind—a battery jar serves well—is now stood on some convenient support above the aquarium and is filled with water from the aquarium. The apparatus can be started easily by slipping a piece of rubber tubing about two feet long over the open end of the Y and sucking on it. As soon as the water starts to flow through the siphon, this tubing is removed and the screw clamp tightened until water no longer drips from the open end of the Y, but instead a series of air bubbles is sucked in. Once started, the only attention required is an occasional replenishing of the water supply from the aquarium below. Care must be taken, of course, that no debris which might clog the Y is transferred. With this piece of apparatus an aquarium can be kept near a window where the aeration will be supplemented by the photosynthetic activity of the plants, and by manipulation of the window a reasonably low temperature can be maintained. Under such conditions, if the aquarium is not overstocked, filling the reservoir two or three times a day will suffice to keep the water sufficiently aerated.

If desired, several aquaria can be placed in tiers, and an aerator be placed in each, leading to the aquarium below, so that only one upper reservoir need be filled to keep the series in operation. In that case care must be observed that the open end of the Y is at the normal water level of the aquarium. Any surplus water brought in by the aerator above will then serve to operate the aerator for the aquarium below.

This device has proved particularly useful when the tap water was chlorinated and it was necessary to bring pond water into the classroom. Also with marine material, when the amount of sea water available was limited, it has still been found possible to keep the animals alive in the laboratory for several weeks.

ERNEST C. DRIVER

SMITH COLLEGE

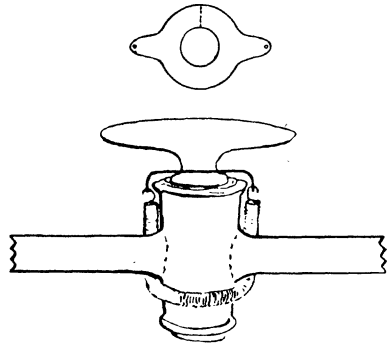
A NEW STOP-COCK CLAMP

SOMETIMES it is necessary that glass valves be made relatively more leak-proof than the binder in the valve lubricant can assure. This is especially true if valves in a system are subject to pressure over considerable periods of time. To overcome such difficulties in leakage, a spring clamp was devised and is herewith described.

A stiff collar is cut from sheet copper (.5–.7 mm thick) in a form similar to the drawing. It is then cut half across and opened to admit the neck of the glass plug. The ends of the collar are then turned down but so that they still clear the seat portion of the valve.

If the closed spring coil, which is used, can not be purchased, it may be made by winding No. 2 music wire[1] on a stiff iron wire or small rod held in the chuck of a breast drill—the latter clamped in a vise. After a 2–3 cm length of coil has been wound, it should be set by heat (in a flame) before removal from the small rod on which it is wound.

The spring tension on the collar varies, depending on the size of the cock and its use. However, as a



criterion for the usual size cock, an adjustment to give a pull of 100–200 g is found to be satisfactory. A moderate tension on the plug will not force the lubricant out appreciably and cause freezing of the valve if a good lubricant, as "Lubriseal," is used. The clamp may be plated if subject to corrosive vapors.

One notes that the collar of the clamp rests upon the shoulder of the glass plug but still permits its perfect freedom of movement; and that the plug may be removed and cleaned readily by extending the spring over the end of the plug seat.

This clamp has found satisfactory application on stop-cocks of manometers, vacuum pump distributors, gas analyzing burettes and other apparatus. Two stop-cocks at the base of one of the gas-analyzing machines—a multiple bulb side-arm type burette—supporting a meter column of mercury, were found to remain functional and leak-proof for weeks without cleaning.

ALDEN F. ROE

THE GEORGE WASHINGTON UNIVERSITY
SCHOOL OF MEDICINE

[1] Obtained from large hardware stores.