perfectly, by taking the descriptions from recent monographs.

No attempt is made to give synonyms, the references being mostly to original descriptions and to the first use of the name in the approved form, as in the first edition. If this plan were followed consistently, all the 17 names dropped from the first edition would disappear. As it is, six are given as synonyms and eleven are not referred to. The inference is that names which have disappeared have been placed in synonymy by the last reviser, but in some cases names have been omitted on the basis of revisions which are still in manuscript form. This is certain to cause some confusion. Either the names omitted should have been only those relegated to synonymy in published papers, or, and we believe preferably, all names placed in synonymy since the 1917 list should appear as synonyms in the second edition.

The authors of a work of this kind face a difficult task. Either they must attempt to evaluate every form and group proposed, which, if possible, would inject the personal element into the work; accept the word of the latest reviser, no matter how questionable this may appear; or steer a middle course, which lays them open to a charge of inconsistency. Anticipating criticism, the authors have kept fairly well to the middle of the road. They have been conservative in accepting changes in the genera and higher categories, and have refrained from accepting some of the most questionable of the new subspecies. They have, in general, however, adopted species and subspecies without question, and, while this is a necessary procedure in a list compiled by only two men, the results are not entirely happy. The acceptance of forms without careful scrutiny gives chief importance to lateness of publication, and the last word is not always the best word. Students differ in their evaluations of characters and variations, and to accept all or even most of the forms proposed is to represent no one's opinions of the composition of some genera. Perhaps no harm is done by this procedure, but one may venture the suggestion that the list would be of even more value if the names were more authoritative. This could be accomplished by a committee on nomenclature of the American Society of Ichthyologists and Herpetologists.

The second edition is quite free from typographical and other minor errors. We note a misprint in the footnote reference to *Natrix fasiata confluens* Blanchard: the type locality is in Missouri, not Michigan, as stated. A subspecies which was apparently missed is *Diadophis amabilis modestus*. In the case of *Chrysemys marginata bellii* the variety name antedates the specific name, so that the two forms should be known as *Chrysemys bellii bellii* and *Chrysemys bellii marginata*.

Herpetologists will be pleased that such a necessary work has been so well done and will not be slow to acknowledge their debt to the authors.

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LABORATORY APPARATUS AND METHODS

THE EMANATION METHOD FOR RADIUM

IN order to make accurate radium analyses or to calibrate a beta-ray electroscope, it is customary to use the emanation method as developed by Schlundt and Moore,[1] and Lind.[2] This involves a boiling off of the emanation from the radium solution, after which it is sealed and allowed to stand from several days to a month in order to allow the emanation to grow. Various methods of sealing have been used in the past with more or less success. If great accuracy is not desired, and the sample is only allowed to stand several days, fairly good results can be obtained by using a one-holed rubber stopper carrying a glass tube. The glass tube is surmounted by a short piece of pressure tubing which can be closed by a Hoffmann pinchcock. It is somewhat safer to draw out and seal off the glass tube, but best of all if the glass tube is sealed directly to the flask and then drawn out and sealed off.

An alternative method which might be suggested would be to seal a large bore stopcock to the flask directly, and keep the stopcock well seated by means of a special stopcock clamp. A heavy saturated stopcock grease would have to be used to prevent the formation of striations and resultant leaks. This method would have the advantage of requiring no glass blowing, once the flask with stopcock was made. It would have all the disadvantages ordinarily encountered with stopcocks.

When using sealed glass tips, the tip must be broken off after the flask has been connected by means of tubing to the emanation gas burette. The flask is usually warmed slightly, after which the tip is broken off and the gas boiled over into the burette. Experience has shown that the small end of glass is frequently projected toward the burette and lodges in the lower stopcock, thus preventing further operations, causing the loss of a sample, and even resulting in a serious explosion in case the operator fails to observe that the path has been obstructed.

Dr. Lind[3] suggested placing a plug of platinum

[1] *J. Phys. Chem.*, 9, 320 (1905); Trans. Am. Elect. Chem. Soc., 21, 471 (1912).

[2] *J. Ind. and Eng. Chem.*, 7, 1024 (1915).

[3] *L. c.* 7, 1027 (1915).

foil in the tube ahead of the stopcock to stop the tip, and later adopted a large bore stopcock so that the tip would pass through. Since large bore stopcocks are in general not as gas tight as the small bore, the author several years ago suggested the use of a simple inner seal in the tube placed ahead of

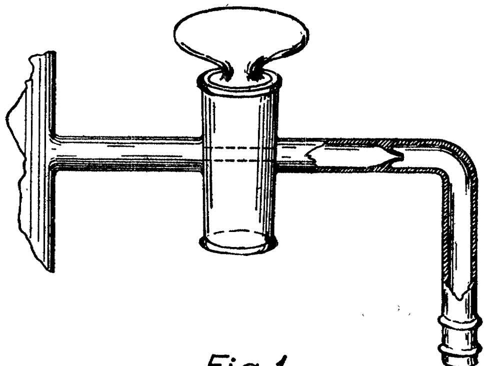

Fig. 1.

the stopcock (Fig. 1.). This method was adopted by the Radium Station of the United States Bureau of Mines, of which Dr. Lind was at that time director, and is being made. Certain objections have been raised to the small hole necessitated by the inner seal, with the result that an alternative model which has cross pieces of glass rods in the tube, as shown in Fig. 2, has been placed on the market.

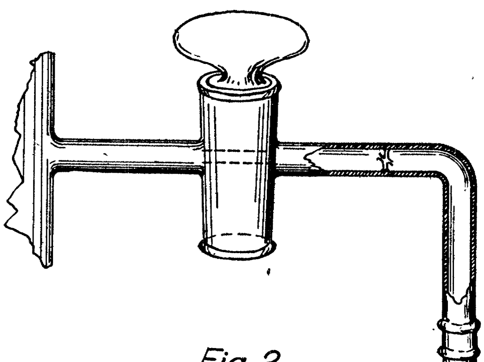

Fig. 2.

Both these types involve rather fragile parts unless well annealed and would be rather difficult for the amateur to make. The device indicated in Fig. 3 is simple to make and will effectually stop all glass tips, since they are carried naturally in a straight line and will drop back to the flask after spending their energy in the trap A. The angle is given in order to increase the difficulty of the tip passing the point A and arriving at the stopcock. The bulb at A is made short enough to insure the possibility of completely removing all gases from it during the boiling-off process. It is made by sealing off one leg of a T-tube close up to the joint.

The importance of allowing the emanation to grow in a glass sealed vessel is better realized when we remember that, even though we seal the flask under reduced pressure (easily done by inserting the stopper while the solution is still steaming) a very minute leak in the stopper may, in the course of several days or weeks, allow the pressure in the flask to become equal to the pressure outside. Thus far no emanation will have been lost, but if the flask now stands for

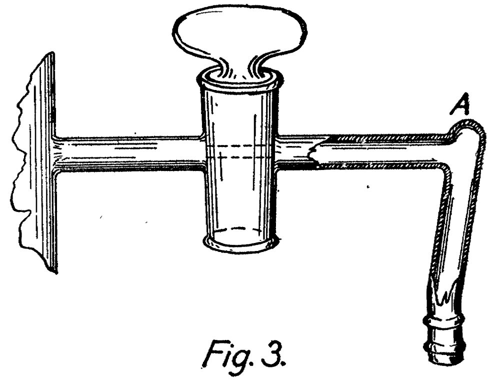

Fig. 3.

several days more, the barometric pressure may vary from day to day, and the temperature of the flask from day to night. The combined effect of these two may cause an excess of pressure of as much as ten centimeters of mercury within the flask. Such a pressure would in certain cases be sufficient to actually raise the stopper from the flask and allow the free passage of the gases to the outside. These conditions actually exist and become evident when we attempt to calibrate a beta-ray electroscope by means of standardized pitchblende, carnotite or radium solutions. With rubber stoppers and tubes closed with pinchcocks the most erratic results are obtained. When we resort to sealing the solutions in glass, the discrepancies disappear.

We are, therefore, forced to resort to breaking a glass tip, and, as a result, to eliminate the possibility of the tip obstructing the stopcock. The device described above does this successfully without involving a constriction, an air trap or fragile apparatus.

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USE OF THE BINOCULAR MICROSCOPE FOR MOLD AND YEAST COUNTS

THE undersigned, while applying the Howard count for molds and yeasts and spores to frozen and canned berries, jams and tomato products, found that the use of a binocular compound microscope, preferably the built-in model, rather than the attachable one, was admirably adapted for this work. With