draw tube and so be raised to a level at which it may be focused. In this case the nose-piece must be removed.

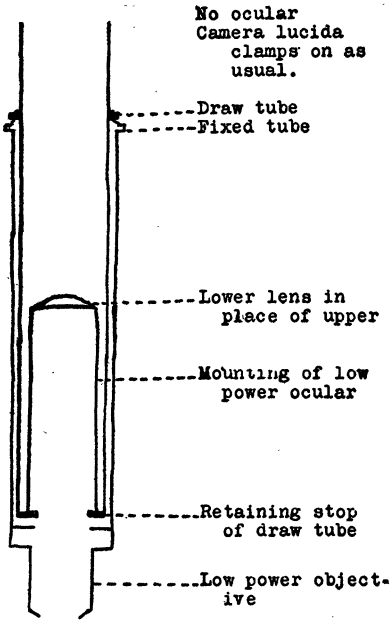

Diagram of a modification of a compound microscope for projecting low power images with the camera lucida. The stand and rack and pinion are not figured.

These methods lack firmness or adaptability and were always makeshifts.

I found an ingenious student last year using a combination which enabled him to get any magnification from ten to thirty diameters he pleased. I do not give the make of the microscope he was using, for I think any instrument with a draw tube can be used.

He took the long (low power) ocular and unscrewed the lenses, replacing the upper lens by the lower and discarding the upper lens. Then he unscrewed the draw tube, removed the retaining stop at the lower end of the draw tube, placed the modified ocular, lens upward, in the draw tube, screwed back the stop and replaced the draw tube in the microscope. He used no upper ocular but focused the instrument in the usual way. When the image was distinct he was able to increase its size by pulling out the draw tube and focusing again. I think a microscope that is constructed for 160 mm tube length will not be clear until that length is reached, but beyond that the image will be increased in size as the draw tube is lengthened.

With a camera lucida he was able to project section after section of a 10 mm pig series at sizes of ten and thirty diameters and all between.

This method may not be sound optically, but it gives clear images, increases the range of effective use of the compound microscope, and I wish I had known of it forty years ago.

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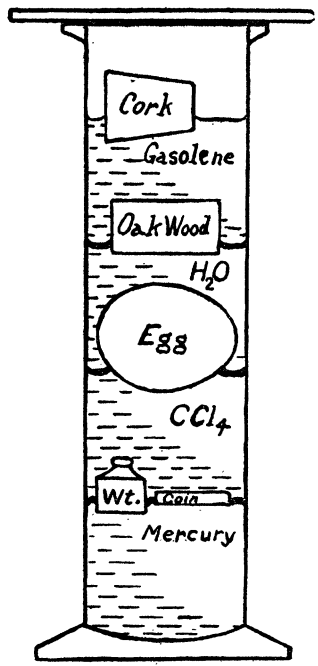
A PRACTICAL DENSITY DEMONSTRATION

THE differences in density of various liquids, the non-miscibility of these liquids and their buoyancy as expressed by Archimedes can be rather vividly demonstrated by use of the simple apparatus illustrated herewith. The liquids contained in an ordinary



hydrometer jar are mercury, carbon tetrachloride, water and gasolene, each added carefully in turn to the vessel. Objects are added as each layer of liquid is introduced. These may include a brass weight and coin, egg, piece of oak wood and cork which will float on the several layers of liquid, respectively. Gold or platinum articles will also sink in the mercury if added. When once this piece of apparatus has been arranged, it may be preserved for months, with the possible exception of the egg.

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SPECIAL ARTICLES

THE MATURATION AND SOMATIC DIVISIONS IN HYBRIDS, VARIABLES AND SO-CALLED MUTANTS

AN important feature in hybrids, which obviously has not attracted the attention which its significance demands, is the striking difference between the conduct of the chromosomes in the meiotic and somatic