

catalogs quickly revealed that they were part of a solid-liquid gas generator known as a Babo generator, after its inventor, the 19th century German chemist, Clemens Heinrich Lambert von Babo (1818-1899). To operate, one bulb was packed with the solid reactant (e.g., iron (II) sulfide) and the other was filled with acid. When mounted on the missing wooden stand, the apparatus could be tilted in one direction to cover the solid reactant with acid or in the other direction to drain all of the acid into the second bulb. Intermediate tilt angles allowed one to vary the percentage of the solid in contact with the acid and so regulate the rate of gas evolution much more elegantly than in the more common Kipp generator. The 1914 catalog for the E. H. Sargent Company of Chicago lists Babo generators with a capacity of 1 liter, though it doesn't indicate whether this refers to one bulb or to both bulbs together (1). The generator found at Eastern Michigan, which is now mounted on a reproduction stand, has a capacity of only 250 mL (both bulbs) and was apparently intended for the use of only one or two students in a qualitative analysis laboratory.

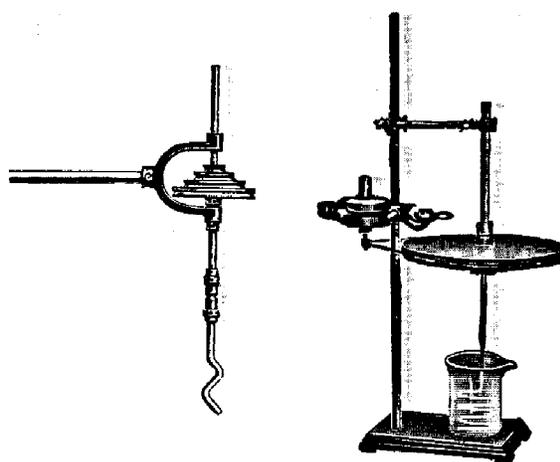
Babo, by the way, was a prolific inventor of laboratory apparatus, including an ozone generator (2), a burner (3), an air bath (3), an absorption tube (1), a retort stand, a gas-oven, and an explosion oven (2). He is also credited with being the first to use the centrifuge in a chemical laboratory.

Even more satisfying is when one is able to assemble a complete piece of apparatus from parts collected from several sources over a long period of time. This December, for example, I found a clamp, with three wooden pulleys of increasing diameter mounted on it, in the basement of Macalester College. This proved to be the missing part to a water-driven laboratory stirrer and, when united with the cast-iron water motor found in the back room of the Ohio Mechanics'

Institute in Cincinnati three years earlier, gave us a complete turn-of-the-century stirring apparatus, as well as elegantly illustrating the adage about all things coming to those who search long enough.

#### References and Notes

1. *Scientific Laboratory Apparatus, Catalog 20*, E. H. Sargent Co., Chicago, IL, 1914, pp. 176, 179, 290.
2. Anon., "Lambert Freiherr von Babo", *Berichte*, 1899, 32, 1163-1164.
3. R. Arendt, *Technik der anorganischen Experimentalchemie*, 4th ed., Voss, Leipzig, 1910, pp. 126, 307.



Turn-of-the-century laboratory stirrers. (Left): A stirrer with variable speed. (Right): A stirrer with the water motor attached.

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