In this manner the remarkable difference in behavior under the influence of centrifugal force of unfertilized and just fertilized sea-urchin eggs can be observed, and quantitative comparison made of the effect of any substance on the viscosity or form of living cells.

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THE AGITATION OF MATERIAL IN AERATED WATER

IN a recent issue,[1] McCutcheon described an apparatus for circulating and aerating material. The purpose of this note is to describe an arrangement that has been found particularly useful for difficult material, and is successful in a number of cases where other methods have not been entirely satisfactory.

It consists of a circular flat-sided flask (a standard Kolle culture flask serves admirably) filled with water, into which is inserted a glass tube bent and connected with a compressed air outlet.

The bubbles of air, rising at one side of the flask, set up a circular motion in the water, the rapidity of which can be adjusted at will by controlling the stream of air, so as to keep the material continuously circulating.

The apparatus is especially useful when the shape or size of the objects circulated renders them likely to become tangled or lodged against obstructions in their path. The smooth, circular motion, with a minimum of subsidiary vortices makes for a very efficient utilization of the air current. A relatively small amount of air is sufficient to keep light objects submerged and circulating, and objects with a specific gravity considerably greater than water circulate freely.

The use of a filter pump to supply the air current is feasible if the joints of the apparatus be made airtight.

The addition of two siphons, with their outer ends immersed below water surfaces of properly adjusted height, will provide for a gradual change of water in the flask, and convert it into an efficient washing apparatus.

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SPECIAL ARTICLES

THE ATOMIC WEIGHT OF LEAD FROM KATANGA PITCHBLENDE

THROUGH Professor A. C. Lane, chairman of the Committee of the National Research Council on the Measurement of Geologic Time, we have recently received a fine specimen of Katanga pitchblende, a gift from Radium Belge. Petrographic examination by Professors Lindgren and Newhouse, of the Massachusetts Institute of Technology, showed the black base to be permeated with microscopic veins of yellow material which Davis has already found to be readily soluble in dilute hydrochloric acid. Extraction of the very finely powdered material with dilute hydrochloric acid removed 22.8 per cent. of the original. Approximate analysis of the residual black pitchblende and of the extract yielded the following percentages of uranium and lead. Other analysts have found similar material to be nearly if not quite free from thorium.

	Per cent. U	Per cent. Pb	Pb/U
Pitchblende	74.9	6.7	0.089
Extract	58.5	8.4	0.144
Whole	71.2	7.1	0.100

Lead was extracted from both portions and was purified chiefly by many crystallizations as nitrate in quartz and as chloride in quartz and platinum. Next it was twice distilled in dry hydrogen chloride, and finally it was fused in nitrogen containing hydrogen chloride in a weighed quartz boat.

Analysis of the chloride was effected by solution and comparison with a solution of nearly equivalent quantity of pure silver. The end point of the comparison was found by the equal opalescence method with the aid of hundredth normal silver and chloride solutions and a nephelometer. For comparison, samples of chloride similarly purified were prepared from common lead (Coeur d'Alene) and from Bedford cyrtolite[1] and analyzed.

The result for common lead agrees closely with that commonly accepted (207.22) and that from Bedford cyrtolite with the value previously found by ourselves (205.92). The varieties from Katanga pitchblende both apparently possess atomic weights appreciably lower than that found by Hönigschmid and Birckenbach,[2] 206.05, with lead extracted from secondary minerals associated with Katanga pitchblende. If the original untreated pitchblende is considered as a whole the average atomic weight of the lead is 205.99. Aston[3] has found Katanga lead to be com-

[1] SCIENCE, November 4, 1932.

[1] See Baxter and Alter, SCIENCE, 76: 524, 1932.
[2] Ber. 56: 1837, 1923.
[3] *Nature*, 129: 649, 1932.