tion to used paper made primarily from chemically prepared pulp. Conservation will result in reworking more paper wastes. The differential in value of the regenerated pulp which goes back to bookstock or into boxboard must bear the cost of "de-inking." To conserve the strength and length of fiber and secure the greatest yield, the paper requires mechanical treatment whereby the fibers are loosened and drawn apart with minimum tearing; the chemical treatment should lift the ink, the substances used dissolving or emulsifying the binder and carrying the pigment particles away in the necessary washing. A combination of borax, soap, kerosene and pine oil, does this best; the last mentioned being a natural solvent of rosin, used as size for many kinds of paper, and a solvent and emulsifying body for gums and resins, which are present in ground wood, used in cheaper grades of magazine papers. The process has been patented.

Recovering newsprint: Charles Baskerville and Reston Stevenson. With the prices obtaining, the recovery of old newspapers in such condition as to be used again for newsprint, offers an opportunity for relative conservation, if not distinct economy in fact. Methods previously devised for recovering printed papers made little or no distinction between newsprint stock and book stock. The former normally contains a large proportion of ground wood, which yellows on treatment with caustic soda, the usual basis of chemicals applied in de-inking printed paper stock. The authors, recognizing the difference in character of the fibers in the several kinds of stocks, have studied the fundamental principles involved and devised a novel method for completely de-inking newsprint stock containing a large percentage of ground wood with the minimum production of yellowing. The process developed depends upon the addition of American fuller's earth to the alkaline solution in which the printed or soiled newspapers are pulped. The binder is loosened and the ink lifted from the fibers, the oils being absorbed by and the ink particles adhering to the argillaceous earth, which is washed away from the fibers through a fine gauze screen. Temperature factors and concentrations are given. A finished pulp, free from pigment and binder, clean as when first made, has been obtained ready-made for the paper mill. If desired the stock may be bleached by treatment with dilute sulphurous acid, but this is unnecessary for ordinary newsprint stock.

On the cellulose content of various compound celluloses: Louis Kahlenberg. Using the ferric chloride hydrolysis method described at the Urbana meeting of the American Chemical Society, various compound celluloses were decomposed and their cellulose content estimated. The following materials were thus investigated: (1) Woods—bass wood, birch, black walnut, cherry, hemlock, maple, redwood, red oak, white ash, Washington fir, white pine, yellow pine; (2) Straws—wheat, oats, rye, barley, millet, soy beans, corn stalks, corn husks, timothy hay; (3) Nutshells—black walnut, English walnut, hickory, filbert, Brazil, pecan, almond, peanut, horse chestnut; (4) Barks—hemlock, pine. So far as comparable results have previously been presented in the literature by others, the values obtained are found to be, in general, of the same order of magnitude as those in this research.

The constitution of cellulose: Harold Hibbert.

The acid hydrolysis of sugar cane fiber and cotton seed hulls: E. C. Sherrard and G. W. Blanco. Sugar cane fiber and cotton seed hulls were hydrolyzed by digesting with dilute sulphuric acid under 115 to 120 pounds steam pressure. About 27 per cent. of total sugar was obtained from the bagasse and about 14 per cent. from the cotton seed hulls. Of the total sugar obtained from these materials very little was fermentable, the greater proportion being xylose. The yield of sugar from bagasse using Hudson and Harding's method was 21.22 per cent. of the original dry fiber. Of this 57 per cent. was obtained as crystalline xylose and shown to be identical with that from cotton seed hulls. Attention is called to the fact that pentose sugar influence the equilibrium established in the hydrolysis of cellulose of hexose sugars. When present in sufficient quantities they prevent the formation of fermentable sugars. It is pointed out that bagasse is a promising source of xylose or furfural.

Charles L. Parsons,
Secretary

SCIENCE

A Weekly Journal devoted to the Advancement of Science, publishing the official notices and proceedings of the American Association for the Advancement of Science

Published every Friday by

THE SCIENCE PRESS

LANCASTER, PA. GARRISON, N. Y.

NEW YORK, N. Y.

Entered in the post-office at Lancaster, Pa., as second class matter