Wood is made into paper by first converting it into pulp. Two pulping methods are used, one mechanical and the other by cooking with chemicals. The mechanical process produces groundwood pulp, which is exactly what its name implies. Wood is reduced to fibre by pressing against large revolving grindstones. Hence large quantities of power are required. The yield of groundwood or mechanical pulp approximates 97 p.c. of the weight of the wood.

In the chemical process small chips of wood, about three-quarters of an inch in length, are cooked at high temperatures and under pressure in a chemical liquor. The cooking, requiring several hours, dissolves virtually everything in the wood other than the cellulose. The yield of pulp is therefore reduced to from 45 to 50 p.c. of the weight of the wood. Three such chemical pulping processes are employed to produce sulphite, sulphate, or soda pulp which obtain their names from the acid or alkali employed in the cooking process.

Paper is made from pulp which, thinly mixed in water, travels in a wide stream on to the wet end of the paper-making machine. As the pulp and water move ahead on a travelling screen, the water is removed from the pulp, which then passes over a series of heated revolving drums in the dry end of the machine where the paper emerges. Thus, the paper is the result of a process of felting and drying the cellulose fibres of the original wood. Machine speeds vary with design as well as the type and weight of the paper made. Some machines produce newsprint at the rate of close to 2,000 ft. a minute. About 250 tons of water may be used to produce one ton of paper.

The type of mixture of pulp employed determines the character of the paper produced. Newsprint is composed of about 85 p.c. groundwood and 15 p.c. unbleached sulphite pulp. Bleached sulphite pulp is the raw material from which is made the better grades of book, writing and tissue papers. When pulp is made for use as the raw material for rayon, cellophane, photographic film, nitro-cellulose and plastics, it is known as "dissolving pulp". Sulphate, or kraft pulp, in its unbleached form is used to produce wrapping and bag papers, container boards and other products in which strength is the prime requisite. When bleached, this pulp is used to manufacture white printing, tissue, tag, envelope and other papers and products in which strength is also essential. Soda pulp is made by pulping short-fibred, broad-leaved species such as poplar, but relatively small quantities are produced in Canada. The raw material of paper-board may include anything from waste paper and pulp screenings (the pulp rejected for paper manufacture) to the finest grades of chemical pulp. Its components vary with the quality and type desired. Canada produces also some pulp made from rags and other fibrous material. Rag pulp goes into the highest grades of paper.

Virtually all papers and paper boards made to-day contain ingredients other than cellulose fibres. Before the pulp goes to the paper machine, dye is added to produce the colour desired. A filler such as china clay, or a size such as resin, or both, may also be added—filler to improve printability, opacity and appearance and size to increase resistance by liquids. To improve the surface of some high-