The cones with proliferated scales observed by Owens and Molder (*loc. cit.*) were found only in association with an undescribed *Trisetacus* sp. This mite is similar to *T. quadrisetus* (Thomas), a species causing similar damage to juniper berries (Morgan and Hedlin, Can. Ent. 92: 608-610). The constant association of only *Trisetacus* n. sp., a member of a known plant damaging mite group with unique damage symptoms, suggests that *Trisetacus* n. sp. causes the damage to yellow cypress cones. True assessment of the damage is not easy because of the difficulty in distinguishing between current and next year's cone crop (Owens and Molder *loc. cit.*); the browning of mature cones may obscure damage symptoms; mites may damage only part of the cone, and open brown cones (class 5) may or may not have been mite infested. Nevertheless, over 50% of the 1974 sampled cones were mite damaged, indicating that mites may be a major problem for seed production in yellow cypress.—R. S. Hunt, Pacific Forest Research Centre, Victoria, B.C.

FIRE

A Divide-By Circuit for Cup Anemometers.—Although the cup anemometer, widely used in forest meteorology, has certain faults (Middleton and Spilhaus, 1953: *Meteorological Instruments*, Univ. of Toronto Press), its basic properties such as simplicity of design, ease of fabrication, ruggedness, good sensitivity and relatively low cost make it practical for many investigations of airflow.

Cup anemometers are usually designed to produce a fixed number of voltage pulses or switch closures for each revolution of the cup assembly, which occasionally presents difficulties for certain applications. For example, the pulses recorded on an event strip-chart recorder might be too close together for adequate resolution, or if an electromechanical counter was used, the total number of pulses might overflow the counter register. Under these circumstances, an anemometer system that produced fewer pulses for each revolution of the cup assembly would be desirable. This divide-by capability is usually provided by a worm gear arrangement. However, the worm gear has a frictional drag which results in decreased sensitivity of the anemometer. Also, the ratio of output pulses to cup assembly rotation remains a fixed figure so that flexibility in application is lost.

To perform this division, an electronic circuit could be incorporated into the anemometer system. Although the use of electronic divide-by circuitry seems to be a logical development, no mention of such an application appears in the literature. This note presents a simple divide-by circuit which has been successfully tested and used.

The circuit consists of three principle sections: a counter or divide-by unit, a buffer stage, and an output transistor switch. The counter employed is a 7-stage binary counter. Incoming positive voltage pulses were selectively divided by a factor of 2^N, where $N = 1$ to 7 according to the output terminal selected. As shown in Fig. 1, the incoming pulses were divided by a factor of 32 (i.e., 2^5). CMOS (complementary symmetry metallic oxide semiconductor) devices were

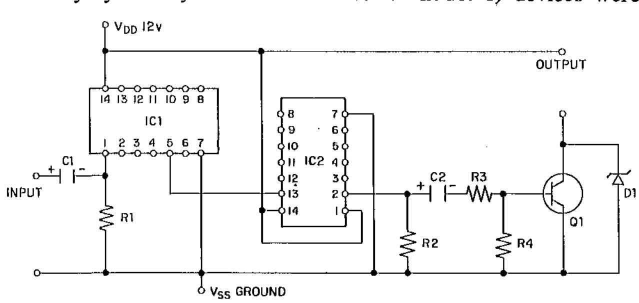

Figure 1. Anemometer divide-by circuit.

TABLE 1

Component list for divide-by circuit

IC1	RCA	CD4024AE	7-stage binary counter
IC2	RCA	CD4016AE	Quad bilateral switch
Q1	ELCOM	ECG103	Transistor or equivalent
D1	15 volt zener diode		
C1, C2	25 uf capacitor, electrolytic		
R1	100 K ohm resistor		
R3	3.3 K ohm resistor		
R2, R4	33 K ohm resistor		
VDD	device supply voltage		
VSS	ground voltage		

utilized to minimize supply power requirements. A quad-bilateral switch (CD 4016) was used as a buffer, but another type of buffer, such as a hex inverter (CD 4009), would have served equally well. Pin numbers (Fig. 1) of the integrated circuit devices are shown as an aid to interpretation. Technical details on CMOS devices may be obtained from the appropriate handbooks (e.g. Anon. 1975: *RCA Solid State Data Book Series SSD-203B COS/MOS Digital Integrated Circuits.* RCA Corporation.) The output transistor switch was selected for its suitability to actuate the solenoid of an event recorder or an electromechanical counter. The circuit was designed for 12 volts, although it will operate at a level not exceeding 15 volts. The input voltage pulse to the counter must not, however, exceed the supply voltage or the device may be damaged.

The divide-by circuit has been used with a sensitive anemometer (Cassella, Model 16108/2) and has been recorded on an event strip-chart recorder (Rustrak, Model 2146) as part of a study of experimental prescribed burns. From the chart record, it was possible to utilize the total number of pulses recorded as the measure of average windspeed, and the length between pulses as the measure of the variation in windspeed during the course of the fire.

The circuit herein described is only an example and not an optimum design. It was simple to construct and gave satisfactory results.—R. H. Silversides, Pacific Forest Research Centre, Victoria, B.C.

PATHOLOGY

A Summer of Vegetation Recovery Near a Phosphorus Plant, Long Harbour, Newfoundland.—The extent of fluoride damage to vegetation until late 1973 and levels of fluoride in foliage and soils in the vicinity of the phosphorus plant, Long Harbour, Nfld., were reported earlier by Sidhu and Roberts (Can. For. Ser. Bi-Monthly Res. Notes, 31(6): 41-42, 1975). Vegetation surveys were continued during 1974 and 1975. However, the 1975 survey was conducted under anomalous conditions because the phosphorus plant was not in operation and as a result there were no fluoride emissions reported during the period from 23 May to 6 October, 1975. This temporary shutdown of the plant provided an opportunity to seek answers to such questions as (a) what degree of vegetation recovery and what levels of fluoride should we expect in vegetation in the absence of emissions from the phosphorus plant during the growing period, and (b) will the present accumulated high levels of fluoride in foliage and soil have any undesirable effects on the new growth of different tree species?

Vegetation was sampled at five sites, one in each of the four Damage Zones and the other outside of Damage Zone IV (see Sidhu and Roberts 1975). At each of the sample locations, 1974 and 1975 foliage from balsam fir, black spruce, white spruce, and speckled alder were collected and fluoride concentrations were determined following the same procedures reported by Sidhu and Roberts (1975). Additionally for balsam fir the percent defoliation, percent foliage with fluoride symptoms and 1974 and 1975 growth of leader and branches were