would be necessary in order to achieve this. In the absence of such information, however, conclusions should be tempered with caution. For example, Wright states that nutrient cycling in the undisturbed forest is efficient, with only minor amounts leaking from the system. At the control site, Dogfish Lake, $13.7 \text{ mg m}^{-2} \text{ yr}^{-1}$ P arrives in precipitation and only 1.5 leaves in runoff. Rather than invoke the terms 'efficiency' or 'conservation' in such a situation, one should suspect an increasing storage capacity, probably due to biomass growth. If there were no storage change then inputs should be equalled by outputs, so the terms 'efficiency' and 'conservation' are not particularly informative in nutrient budget studies.

It is evident from Wright's data, however, that the output of nutrients at the burned sites exceeded expected values based on extrapolation from the control data. Such figures for increased discharge as 26% for Ca, 29% for Mg, 265% for K, 65% for Na and 93% for P were obtained from the Meander Lake catchment. Thus water entering the lakes had been substantially enriched in both phosphorus and cations.

Input of nutrients to the lakes is derived from runoff water and also directly from precipitation. At his control site Wright found that runoff was the major source of cations, but that precipitation accounted for over 80% of the phosphorus input. This is presumably due to the adsorptive properties of the soils for phosphorus. At Meander Lake, after catchment burning, runoff inputs were increased yet further for the cations, and for phosphorus were brought up to the same level as that derived from precipitation. The total increase in phosphorus load at Meander Lake as a result of this change was 38%. In Wright's opinion this lies within the kind of year to year variation expected in phosphorus supply and does not represent a major eutrophication episode. If this is so, then the adsorption of phosphorus in the soil of the catchment is critical for the maintenance of stability of lakes in periods of catchment disturbance. □

A hundred years ago

A NEW STAR IN CYGNUS. — On November 24, at 5h. 41m. P.M., the director of the Observatory at Athens, Prof. Schmidt, remarked a star of the third magnitude not far from ρ Cygni, which was not visible on November 20, the last clear evening previous. Its position from observations with the refractor was found to be in R.A. 21h. 36m. 50·5s., N.P.D. 47° 40′ 34″ for the beginning of the present year. At midnight its light was more intense than that of η Pegasi, which is rated a third magnitude by Argelander, and very yellow.

Direct intimation of this discovery was given by Prof. Schmidt to M. Leverrier, and the Paris *Bulletin International* of December 6 contains the few particulars concerning this star which the generally unfavourable weather up to that date had permitted to be put upon record. M. Paul Henry estimated it of the fifth magnitude, so that as in the cases of the similar suddenly-visible stars of 1848 and 1866, it would appear to have remained but a very short time at a maximum. He considered the colour "greenish, almost blue" by comparison with Lalande 42,304, not far distant.

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Man's influence not yet felt by climate

from John Gribbin

THE message conveyed by Professor B. J. Mason, Director-General of the UK Meterological Office, in a recent lecture was—don't panic. The theme of Mason's lecture (given to the Royal Society of Arts on December 1) was "Man's Influence on Weather and Climate", and his conclusion was that the climatic system is so robust, and contains so much inherent stability through the presence of negative feedback mechanisms, that man has still a long way to go before his influence becomes great enough to cause serious disruption to the natural climatic system.

Mason began his discussion by setting the influence of man in the context of the natural climatic changes that occur continually, pointing in particular to fluctuations of temperature in the United Kingdom during the three centuries for which instrumental records are available. In the past, fluctuations on the scale of 1 °C variation in the annual mean temperature have had less impact on society than similar changes may have in the future; as Mason stressed, the present large world population and inadequate food reserves now put the agricultural system under unprecedented strain. "There is no question that climate is variable and that variations have a greater social and economic impact than ever before", so that changes of 1 °C in the long term mean cannot be ignored—such a variation in the United Kingdom could, for example, change the length of the growing season by three weeks. But is man's influence yet approaching even this level?

Three anthropogenic influences have been widely cited as potential causes of climatic disaster: the "greenhouse effect" caused by CO_2 from burning fossil fuels; cooling produced by dust in the atmosphere; and the effects of chlorofluorocarbons and supersonic aircraft on the stratospheric ozone layer. Mason's analysis of the problems hinged upon the computer modelling of the atmosphere which is the forte of the Met Office, and the numbers he produced were surprising, if reassuring, to at least some members of his audience. A dust layer in the stratosphere thick enough to cut off 4% of incident solar radiation, for example, warms the upper atmosphere by as much as 10–20 °C, but produces no detectable effect on the troposphere in the models. And this conclusion may be borne out by events in the real atmosphere after the volcanic eruption in Bali in 1962, when the temperature of the stratosphere increased by some 6 °C without any observable effects, according to Mason, on the lower atmosphere.

The ozone problem has been highlighted by controversy surrounding Concorde and spray cans, widely reported in *Nature*. Both the Met Office and American models have now shown that even a fleet of 500 SSTs flying for 5 hours per day each would not reduce the ozone content of the stratosphere by more than 1%, and although the hazard from spray can propellants seems greater, even there release of "freons" could continue at the present 700 kt yr^{-1} until 2100 AD before ozone would be reduced by 8%. Mason feels that the decision in the US to ban such propellants is over hasty, not least because if release at the present rate continued for another 5 years the climate modellers would have enough hard figures to produce better models of what is going on.

But the can is now being banned, at least in the US, and we are left with the release of CO_2 as man's only real, quantifiable contribution to climatic change yet or in the near future. Having cautioned that if the effect is real, something must have offset it in recent decades, since the Earth has actually been cooling down, not warming up, Mason suggested that within 50–100 years the effects of CO_2 release into the atmosphere will produce a warming of 1–2 °C, well into the range significant for our present global society. Computer modelling indicates that rainfall patterns would be shifted by 5–10%, but the models are not yet sophisticated enough to detail the effects on specific regions of the globe. There is, says Mason, a real and significant effect here which must be investigated further with bigger and better models—but there is time to develop the necessary models and no need for panic induced by the prophets of doom. □