From an examination of the stomach contents of *Hyperoglyphe* off the east coast of Tasmania in June, July, September and October 1954, and in January, March, May and July 1955, it was apparent that the incidence of *Pyrosoma* in the stomachs was at its maximum during the months of January and March. No other food organism became dominant at any time, so the incidence of *Pyrosoma* in the stomachs may reflect the seasonal abundance of the tunicate, though it could possibly reflect seasonal variation in the feeding intensity of the fish.

The specimens of *Pyrosoma* were identified by Mrs. M. Mather of the Zoology Department, University of Queensland.

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MISCELLANY

'Dex' or 'Order of Magnitude' ?

The phrase 'order of magnitude' is in constant use. It has at least two different meanings. In astronomy the magnitude of star A exceeds that of star B by unity if the amount of radiation (measured visually, photographically or bolometrically) reaching an observer or instrument on the Earth in a given time from A is $10^{-0.4}$ or 0·3981 times that from B. In other sciences A is said to exceed B by an order of magnitude if it is ten times as large. To take an example, Lowy[1] wrote, "Thus, in the tonic anterior byssus retractor of *Mytilus*, the decay of tension can be two orders of magnitude slower than that of the active state". I take it that this means that the time needed for the tension to fall to a given fraction of its initial value after tonic contraction can be 100 times greater than the corresponding time after active contraction.

There is a shorter and more precise word to express such a comparison. This is the word 'dex', for 'decimal exponent', due to Allen[2,3]. He defines it as follows. "Dex converts the number before it into its 10-based antilogarithm. The term can be used for a typographically convenient method of expressing large numbers, as in the example 10^{39} = 39 dex. It can also be used to introduce verbal simplicity into statements on probable errors, ranges, and variations." He gives, among others, the example "The frequency range of useful radio-astronomy observations is 3·2 dex".

I suggest that outside astronomy 'dex' can always be substituted for 'order of magnitude' with advantage. I give a few examples from biology. "The range of weights of vertebrates is 10 dex, that of weights of birds only 4 dex." "A man consists of about 14 dex of cells." "The ratio of length to breadth in a nerve fibre can exceed 6 dex." "There are about 11 dex of birds." "The coefficient of variation of linear dimensions of unworn mammalian teeth rarely exceeds 0·05 dex." "The human ear has a frequency range of about 3·5 dex (1 octave = 0·301 dex) but the range of tones used in music is only 2·1 dex."

It can also be used with advantage in the social sciences, for example, "There are 8·6 dex of human beings in India, and about 8 dex of adult males. The range of incomes certainly exceeds 3 dex and may exceed 4".

Biologists will have to learn to think rapidly in terms of large numbers, as physicists, chemists, astronomers, and geologists do already; and even in the case of small numbers, the use of the word 'dex' may be an aid to precision of thought. I venture to hope that it may also be taken over from the terminology of astrophysics into other non-biological sciences. I am trying to use it systematically in lectures in this Institute.

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PSYCHOLOGY

Effects of Medial Temporal Lesions on Taste Preference in the Monkey

Monkeys with lesions in the medial portions of the anterior temporal lobes (the amygdala and pyriform cortex) tend to show marked changes in their responses to events that, pre-operatively, served as rewards or punishments. For example, it has been claimed that animals tend to be unafraid of snakes and strange people, to mount inanimate objects, to ingest a host of objects that were unacceptable pre-operatively. According to one descriptive generalization[1] monkeys are still motivated by reward and punishment, but the classes of events that are rewarding or punishing alter. In order to examine this view more specifically and also to rule out the possibility that the changes in reward–punishment classification occur simply because of changes in sensory capacity, the following experiments were undertaken.

Prior to operation saccharine preference curves for ten monkeys were determined. Each animal was given daily tests with one drinking dish containing distilled water and the other one containing saccharine sodium in one of four concentrations (1·0, 0·25, 0·05, 0·017 per cent). The actual concentration given on any day and the positions of the two dishes were randomized. Once a week both dishes contained distilled water.

This procedure lasted five weeks, so that a reasonably stable preference curve for each animal could be determined. Typically monkeys showed an aversion for the 1 per cent concentration and a moderate preference for the 0·017 per cent concentration, with a clear and strong preference for the middle two concentrations. Throughout the entire experiment, monkeys were provided with unlimited quantities of their standard diet of diet 41 lab chow, with vitamin C added.

In addition, with six of the monkeys, absolute thresholds for saccharine were determined using a method that does not depend upon the animal's preference for saccharine. The animal was trained to lick up 5 drops of a solution placed upon a piece of aluminium foil clamped to the top of a small iron