

The oxidation of diamino alkanes from 1,2-diaminoethane to 1,8-diaminooctane was broadly in agreement with that reported. Dimethylaminoalkylamines were also oxidized; 3-dimethylaminopropylamine (5%); 4-dimethylaminobutylamine (32%); 5-dimethylaminoamylamine (43%) and 6-dimethylaminohexylamine (8%).

Meta- and para-isomers of bis(methylaminomethyl) benzene and bis(dimethylaminoethyl) benzene were synthesized, and were shown to be neither substrates nor inhibitors of cadaverine oxidation.

A series of monoamines was oxidized thus: propylamine (8%); butylamine (10%); amylamine (less than 5%); benzylamine (0); 2-phenylethylamine (0); 3-phenylpropylamine (0); 4-phenylbutylamine (0); tyramine (0); mescaline (0); noradrenaline (0) and tryptamine (0).

Alpha, omega amino acids (3-aminopropionic and to 6-aminocaproic acid) were not oxidized, and showed no inhibitory potency. Ortho-, meta- and para- isomers of aminomethylbenzoic acids were prepared and behaved in a similar way.

The oxidation of both cadaverine and of para-bis(aminomethyl) benzene by the enzyme preparation was inhibited strongly by KCN (10^{-3}M); sodium diethyl dithiocarbamate (10^{-3}M); and hydrazine (10^{-5}M); semicarbazide (10^{-5}M) and hydroxylamine (10^{-3}M), thus establishing that the oxidation of both these compounds was effected by the same enzyme.

A scheme for the interaction between enzyme and substrate, based upon these observations, is proposed.

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An apparatus for measuring passive resistance to movement of the forearm in man

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Basically the apparatus (Fig. 1) consists of an armboard (A) supported on bearings (X). Mounted beneath the board is a strain gauge (B) (Ether UFI 908 g load range).

Attached to the gauge are wires (W) leading over pulleys to a winding drum linked by suitable gearing to the shaft of a constant speed reversible motor.

On operating the motor, the armboard can be moved by a pull through the wire on to the strain gauge. This distorts the gauge and a record of output from the gauge, after suitable amplification, is recorded on a Devices pen-recorder. The board pivots about point (P) through an arc of a circle and there is a photocell or microswitch arrangement (Ph) which cuts off the motor after the desired arc has been transversed.

A subject places his arm so that the elbow is resting above point P with hand resting on board. The apparatus is then switched on and force required now to move hand and board noted. The experiment is repeated a number of times and mean force (in arbitrary units), required to move arm can be calculated.

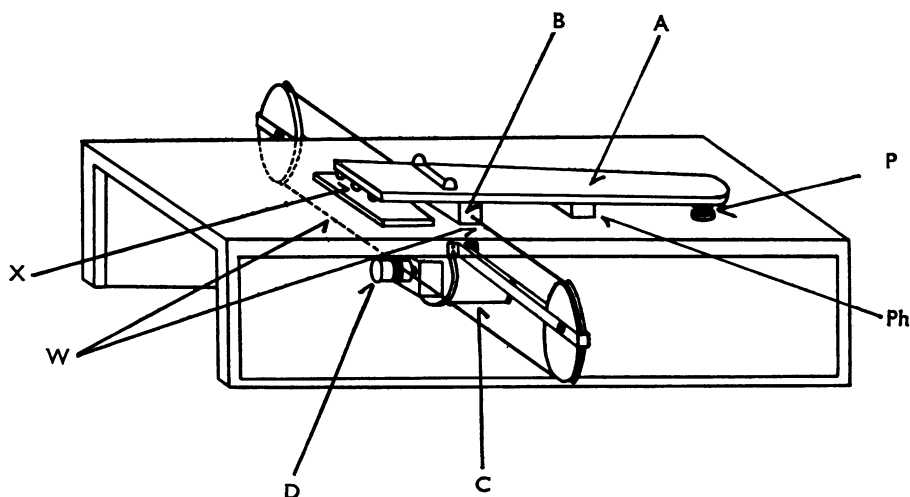


FIG. 1. Diagrammatic representation of apparatus for measuring passive resistance to movement of the forearm in man.

Air bearings can be used instead of ball bearings.

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Stress-induced oral and gastric ulcers in rats

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The "stress" of a period of physical restraint is a well established means of producing gastric ulcers in rodents (Brodie, 1968). The mode of production of these ulcers is generally considered to be similar to that of stress-induced gastric ulcers in the human. A similar relationship between certain oral lesions and psychological stress in the human has also been suggested. Random examination of the oral cavity of rats subjected to 24 hr of physical restraint showed that oral ulcers as well as gastric ulcers were being produced, thus prompting a detailed study of this phenomenon.

Male and female Wistar rats were subjected to 24 hr of physical restraint by enclosure in plaster of Paris bandages, a successful technique first demonstrated by Martindale, Somers & Wilson (1960). At the end of this period the rats were killed with ether, their stomachs removed, washed with warm water and inflated with formol saline. Gastric ulcers were then detected by macroscopic examination of the stomachs under transmitted light.

Oral ulcers were detected as follows: After the animals were killed, the head was removed and immersed in formol saline solution for 48 hr with the jaws gagged open. The tongue, soft palate and lower lip were then removed and examined for ulcers by macroscopic examination, but in this case application of 2% fluorescein solution was necessary in order to render the ulcers easily visible.

Gastric ulcers were found only in the glandular portion of the stomach; no rumen ulcers were observed. Oral ulcers, on the other hand, were found on the tongue, palate and lower lip to significantly different extents. There were no signi-