seems more likely that the difficulties encountered are related to the establishment of conditions optimum to feeding. Avoiding the use of a membrane relatively impermeable to attractants and feeding stimulants is apparently an important step toward the accomplishment of optimum feeding.

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Psychopathologic Symptoms Induced by Bis-Beta-Aminopropionitrile

Several chemical substances have recently attracted much interest because of their hallucinogenic and tranquilizing effects. The purpose of our investigation was to establish whether bis-β-aminopropionitrile (Bis BAPN) (*1*) should be considered as a psychopathogenic compound.

Rats of the Sprague-Dawley (200 g) and Long Evans (280 g) strains were injected intraperitoneally with different amounts of bis-β-aminopropionitrile varying from 0.01 to 10 g per kilogram of body weight. Dosages of 4 g/kg and above were lethal within 2 to 7 days, whereas amounts below 1 g/kg caused no obvious symptoms. Levels between 1 and 2 g/kg produced the most striking psychopathologic phenomena. Immediately following injection of 2 g/kg, motor inactiveness, hypersalivation, and increased respiration were induced. For the following 48 hours the animals showed no abnormal behavior.

After approximately 2 days, the animals that had received 2 g/kg showed a marked hyperactivity. They moved their heads from side to side and twitched their necks in a manner reminiscent of patients with von Economo's encephalitis. When placed in an open space, they ran backward in a coordinated manner. If pushed forward, the rat counteracted by pushing backwards, sometimes with such a force as to produce a complete "backward somersault." The slightest touch incited a screaming that was not observed in the controls.

In all, about 80 animals were treated, with identical results. This peculiar behavioral pattern persisted for about 14 days, at which time a decline in backward running was noted. The rats moved alternately forward and backward and in the intervals frequently circled as if chasing their tails. The motor hyperactivity and head twitching persisted. The rats have remained in this condition during a 5-month period of observation; they have been able to eat and also to gain weight.

Albino mice were also injected intraperitoneally with bis-β-aminopropionitrile in a concentration of 1.5 to 2.0 g/kg. After 3 days a motoric hyperactivity became evident. The mice frequently ran in circles as if they were chasing their tails. Occasionally they moved backward and twitched their heads, but this behavior was much less pronounced than in the rats. This phenomenon resembles the genetical "waltzing" anomaly in certain breeds of white mice (*2*) and the symptoms produced by injection of β-β-iminodiproprionitrile (*3*).

Interesting psychopathologic symptoms were observed in birds (*Melopsittacus undulatus*) following a single intraperitoneal injection of 2 g/kg of bis-β-aminopropionitrile. On the third day a general hyperactivity was noted. It was characterized by persistent locomotion, excessive courtship, and compulsive eating. Other abnormalities of the motoric system were periodical circular movement and backward walking.

The behavioral pattern of fish (*Lepomus gibbosus*) can also be changed by intraabdominal injection of 2 g/kg of bis-β-aminopropionitrile. After a delay of 10 days, the fish showed periods of hyperactivity lasting for about 5 minutes, consisting of gyroscopic movements, barrel rolling, swimming on the back or on the side, and standing on the head. Afterward, the fish regained a normal position. These episodes can be produced at any time by merely touching the fish.

An exciter effect was also observed in invertebrates. Grasshoppers (*Melanoplus*) were injected intraabdominally with 1 and 2 g/kg of the same compound. When the lengths of their leaps were measured, it was found that they were significantly increased after administration of the weakest concentration. A protozoan (*Tetrahymena*) was given bis-β-aminopropionitrile in a concentration of 1/10,000 in the culture medium. When the speed with which this organism transverses the microscopic field was measured, it was found to be about twice as fast as that of the controls.

In all the tested animals, bis-β-aminopropionitrile induced a hyperactivity. The changes of the motoric system were most pronounced, but an excitation in more complex behavioral patterns, such as eating and courtship, was also observed. In addition to an acceleration of the normal behavior, the compound also produces apparently new and abnormal patterns. These abnormalities are strikingly similar to the symptoms produced by lysergic acid diethylamide (LSD-25) (*4*). Contrary to the transitory action of lysergic acid and diethylamide, the symptoms induced by bis-β-aminopropionitrile persist. The reason may be that the latter compound produces permanent alteration of the neurons of the spinal cord and brain (*5, 6*).

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Effects of Desoxyribonucleic Acid Breakdown Products on Bacterial Population Changes and Virulence

During studies on the transformation of various strains of *Brucella* spp. by highly polymerized desoxyribonucleic acid (DNA) from genetically different strains, it has been observed (*1*) that the addition of desoxyribonuclease (DNase) to DNA-containing broth cultures causes rapid population changes from M (mucoid) or R (rough) to S (smooth). As a rule, initially non-S (avirulent) cultures of pathogenic bacteria do not undergo population changes to S (virulent) *in vitro*—that is, the gradual establishment of spontaneously arising S mutant cells in initially non-S populations is not favored (*2*). However, in susceptible hosts, or in the presence of DNA and DNase *in vitro*, such population changes (non-S to S) occur with many non-S strains (Table 1).

Studies with *Brucella* have demonstrated that the latter selective effects involve the inhibition of growth and the killing of non-S cells by a breakdown product of DNA. The breakdown product responsible for these effects does not