a clinic setting Twenty-two children with ADDH between 6 and 10 years of age participated in a double-blind, placebo-control within-subject (crossover) design in which each child received four doses of MPH (5, 10, 15, 20 mg) and a placebo in a randomly assigned, counterbalanced sequence A series of one-way ANOVA's with repeated measures showed significant overall medication effects on MFFT performance, teacher ratings of self-control, attentive behavior, and academic efficiency Trend analyses revealed a significant linear relationship between improvement in the clinic and classroom measures and increasing dose

THE EFFECTS OF METHYLPHENIDATE ON LEARNING IN CHILDREN WITH ADDH Stuart A Vyse Connecticut College, Mark D Rapport State University of New York at Stony Brook

The present study evaluated the utility of a clinic-based learning measure (the stimulus equivalence paradigm) and classroom observations in detecting dose-related behavioral changes in children with Attention Deficit Disorder with Hyperactivity (ADDH) Twenty-six ADDH children participated in a double-blind, placebo-control, within-subject (crossover) design in which each child received four doses of MPH in a randomly assigned sequence A series of one-way analyses of covariance found significant medication effects on several classroom and clinic-based measures In addition, the stimulus equivalence paradigm revealed dose-related improvements in both specifically instructed material and incidental learning

ATTENTION DEFICIT DISORDER AND METHYLPHENIDATE RATE-DEPENDENT EFFECTS ON OPERANT BEHAVIOR George J DuPaul University of Rhode Island, and Mark Rapport Department of Psychiatry & Behavioral Science, State University of New York at Stony Brook

The two most common treatments for Attention Deficit Disorder with Hyperactivity (ADDH) are psychostimulant medication and behavior therapy The present study examined the effects of several doses (i e , 5 mg, 10 mg, 15 mg and 20 mg) of methylphenidate on the operant key-pressing behavior of 20 ADDH children Each child was randomly assigned to one of two groups wherein equivalent instructions but different multiple conjunctive schedules were employed Methylphenidate effects on behavior maintained by complex reinforcement schedules were dependent upon the reinforcement schedule employed (i e , the response rate it controls under control conditions) These results have implications for the nature of rate-dependent phenomena in humans and the treatment of ADDH children

DISTINGUISHED FOREIGN AFFILIATE

Friday August 28, 1987 • 3 00 p m –3 50 p m
Marriott Marquis Hotel • Boothe/Edison Room
Chair *Hugh L Evans,* Institute of Environmental Medicine, New York University Medical Center

BENZODIAZEPINE-INDUCED INGESTION PHARMACOLOGICAL AND BEHAVIORAL ATTRIBUTES Steven J Cooper Department of Psychology, University of Birmingham, Birmingham, B15 2TT, United Kingdom

Classical benzodiazepines (BZs) have been succeeded by a variety of partial agonists which act at central BZ receptors, which retain anxiolytic activity but which lack behaviorally-depressant side effects While the original full agonists are consistent in their enhancement of food consumption, the newer partial agonists differ Thus, BZs like Ro17-1812 have a strong hyperphagic effect, the β-carboline ZK 91296 appears to have a weaker effect, and the pyrazoloquinoline CGS 9896 is without effect Behaviorally, BZs enhance consumption of palatable diets, and we have some evidence that BZs increase sham feeding in the gastric-fistulated rat These data may link with recent reports that BZ treatment increases positive responses in a taste reactivity paradigm

YOUNG PSYCHOPHARMACOLOGIST AWARD, NEW FELLOW ADDRESS

Friday August 28, 1987 • 4 00 p m –4 50 p m
Marriott Marquis Hotel • Boothe/Edison Room
Chair *Donald Overton,* Departments of Psychology and Psychiatry, Temple University

BEHAVIORAL PHARMACOLOGY OF THE ATYPICAL ANXIOLYTIC BUSPIRONE John H Kehne Department of Psychiatry, Yale University School of Medicine, 34 Park St , New Haven, CT 06508

There is much interest in the mechanism of action of non-benzodiazepine anxiolytics that are devoid of muscle relaxant and sedative side effects In the present study, systemically-administered buspirone showed potent anxiolytic activity using the fear-potentiated startle paradigm Anxiolytic action was also found following direct infusion of buspirone into the lateral ventricular system Gepirone, an analog with a pharmacological profile different from buspirone with respect to dopamine, also demonstrated anxiolytic action in this model, whereas the common metabolite 1-pyrimidinyl-piperazine (1-PP) was without effect Buspirone's blockade of fear-enhanced startle was not

attenuated by pretreatment with a variety of 5-HT antagonists Furthermore, administration of other agonists for the 5-HT_{1a} receptor (8-hydroxy-2-(di-*n*-propylamino) tetralin, ipsapirone) did not attenuate fear-potentiated startle Finally, buspirone's action was not attenuated by opiate, alpha$_2$-adrenergic, or benzodiazepine antagonists Thus, the mechanism by which buspirone attenuates anxiety measured with the fear-potentiated startle paradigm remains to be determined (Studies presented were carried out in collaboration with Dr James V Cassella and Dr Michael Davis in the Department of Psychiatry)

THE INTERACTION OF PHARMACOTHERAPY WITH FAMILY THERAPY IN THE TREATMENT OF SCHIZOPHRENIA Michael J Goldstein University of California, Los Angeles

Recent developments have indicated that maintenance pharmacotherapy fails to protect from 40–50% of schizophrenic patients from a relapse over the 12 month period after discharge The search for other risk factors have identified certain attributes of the family environment Attempts to modify these attributes in the context of regular pharmacotherapy will be reviewed and the results of four successful controlled clinical trials summarized The interaction of these efforts with new directions in modifying the dosage levels and patterns of antipsychotic drug administration (low dose and targeted dose strategies) will be explored

INVITED ADDRESS: STATE OF THE ART ADDRESS

Saturday August 29, 1987 • 2 00 p m –2 50 p m
Marriott Marquis Hotel • Boothe/Edison Room
Chair *Hugh L Evans,* Institute of Environmental Medicine, New York University Medical Center, New York

A PRIMATE MODEL OF LEAD-INDUCED BEHAVIORAL IMPAIRMENT IN CHILDHOOD Dr D C Rice, Toxicology Research Div , Health and Welfare Canada, Ottawa, Ontario, Canada

PRESIDENTIAL ADDRESS

Sunday August 30, 1987 • 4 00 p m –4 50 p m
Marriott Marquis Hotel • Olmstead Room
Chair *Conan Kornetsky,* Division of Psychiatry, Boston University School of Medicine

DRUG-PRODUCED AND SENSORY STIMULI A COMPARISON OF PROPERTIES Donald A Overton Departments of Psychiatry and Psychology, Temple University, Philadelphia, PA 19122

This paper compares the formal properties of contextual and discriminative control by sensory and by drug-induced stimuli Many important parallels can be drawn based on experiments which test for habituation, overshadowing and blocking with drug stimuli, threshold and maximum-discriminable dosages, intensity-response curves, and just noticeable differences Other important comparisons are not yet possible because the necessary data have not been collected for the drug-stimulus case These include data allowing analysis of the number of qualitative dimensions of drug-induced sensory experience, the degree of independence/overlap of the stimuli induced by pharmacologically dissimilar drugs, the significance of feature-positive/feature-negative effects in discriminative control by drug states, and the role of normal 'no drug' background sensory stimuli

BUSINESS MEETING

Sunday August 30, 1987 • 5 00 p m –5 50 p m
Marriott Marquis Hotel • Olmstead Room
Chair *Donald Overton, Department of Psychology* and Psychiatry, Temple University

NEW FELLOWS ADDRESSES

Monday August 31, 1987 • 11 00 a m –11 50 a m
Marriott Marquis Hotel • Odets/Wilder Room
Chair *Klaus Miczek,* Tufts University

THINKING OF BEHAVIORAL PHARMACOLOGY AS TOXICOLOGY (AND VICE VERSA) Ronald W Wood Research Associate Professor of Environmental Medicine, New York University Medical Center, New York, NY 10016

Since Paracelsus observed that dose makes something *not* poisonous, the task of pharmacology has been to trade off useful effects of chemicals against their toxicity or as my colleagues in the pharmaceutical industry call it, "side effects " These friends must approach the problem of finding the useful effects of chemicals quickly, and consequently they push the dose to characterize the compound, the contributions made by the discipline are obvious in the ability to identify and characterize useful products with this approach However, in most cases, the doses used are so high that the effects they produce would have to be characterized as behaviorally toxic effects Behavioral toxicology has certainly profitted from the substantial contributions made by behavioral pharmacology to our understanding of the acute effects of psychoactive chemicals (examples are many, and a few will be offered emphasizing not only the direct actions of chemicals, but also their stimulus properties) But the task of behavioral toxicology is not just the characterization of prominent effects, and the determination of the location of maximal and rate-decreasing effects The behavioral toxicologist frequently must identify effects at very low doses (in the therapeutic range), where effects are likely to be small and could even be characterized as beneficial if exposure was deliberately undertaken Simply adopting the pharmacologist's strategy of one or two replications at many doses, would result in missing minimal effects, and of recommending exposure levels that are imprudently high The techniques of behavioral pharmacology are more than sensitive enough for this purpose, the experimental designs just need more attention to the "power" of the experiment Applying these approaches to the study of psychoactive and abused drugs would surprise many, as it would undoubtedly show effects of our favorite prototypical drugs of abuse at very low levels, and to have longer durations of effects than currently anticipated In addition, it is likely to erase the "species"-ist (arrogant) supposition that the rat (or the non-human primate) is routinely much less sensitive than man Behavioral pharmacologists should consider some of their frequently used preparations as acute toxicity evaluations, and their prolonged tolerance and self-administration experiments as chronic toxicity evaluations, behavioral toxicologists should continue to study "pharmacologic"