



The International College of Neuro-Psychopharmacology

PART TWO

THE BIRTH OF NEUROPHARMACOLOGY

1952-1964

INTRODUCTION

Simultaneously with the introduction of the first set of psychotropic drugs putative neurotransmitters were identified in the brain and there was a shift in emphasis from electrical to chemical transmission in the central nervous system.

The invention of the spectrofluorometer created the tool necessary to measure drug-induced changes in putative neurotransmitters and their metabolites in the brain.

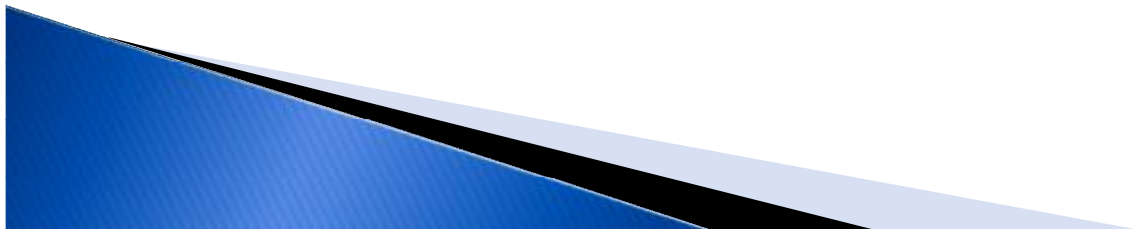


**THE BIRTH OF NEUROPHARMACOLOGY
1952**



E. ALBERT ZELLER

A Swiss biochemist at Northwestern Medical School, Chicago. With colleagues Barsky, Fouts, Kirscheimer and Van Orden discovered iproniazid inhibits monoamine oxidase, the enzyme responsible for the oxidative deamination of monoamines, like serotonin and norepinephrine.



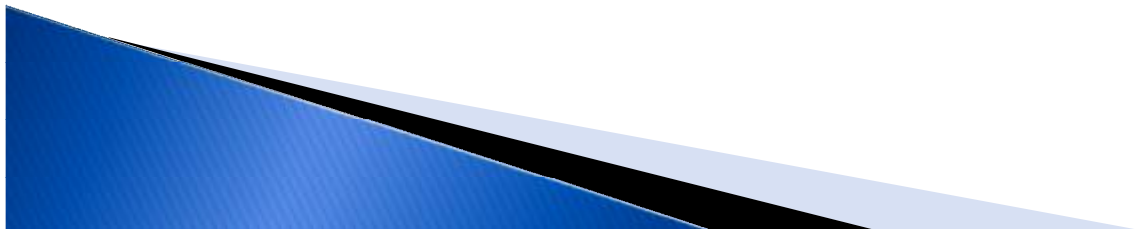


**THE BIRTH OF NEUROPHARMACOLOGY
1955**



SIDNEY UDENFRIEND

An American pharmacologist; National Institutes of Health. With colleagues Bowman and Caulfield developed the spectrofluorometer, an instrument with the resolution power to measure the concentration of neurotransmitters and their metabolites in the brain.





THE BIRTH OF NEUROPHARMACOLOGY

1956



BERNARD B. BRODIE,

CINP Founder

An English born, American chemist; Director, Laboratory of Chemical Pharmacology, National Institutes of Health. With colleagues Shore and Pletscher linked serotonin release to the sedative action of Rauwolfia alkaloids. Eight of the ten founding researchers, in addition to Brodie himself, were colleagues, fellows or research assistants in his laboratory.

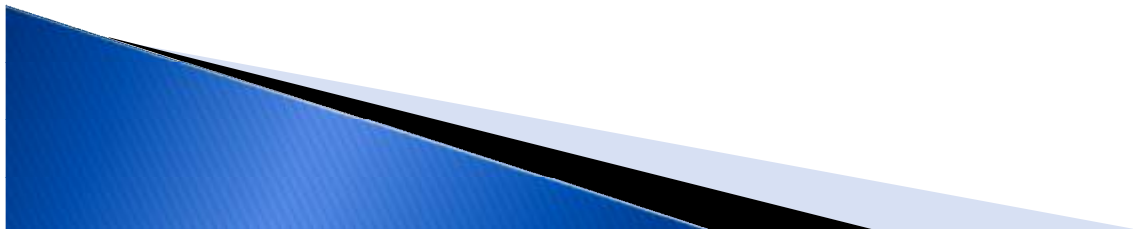


**THE BIRTH OF NEUROPHARMACOLOGY
1956**



PARKHURST A. SHORE

An American pharmacologist on Brodie's team, who participated in the pioneer studies, linking clinical effects to biochemical mechanisms. He was first to show, in collaboration with Pletscher that reserpine released and depleted serotonin in the brain.





THE BIRTH OF NEUROPHARMACOLOGY

1956



ALFRED PLETSCHER

CINP Pioneer

Swiss physician and pharmacologist, a visiting scientist on Brodie's team. First to show that iproniazid increased serotonin levels in the brain.



**THE BIRTH OF NEUROPHARMACOLOGY
1957**



ARVID CARLSSON

CINP Pioneer and President, 1978-1980

Swedish physician and pharmacologist; began in Brodie's Laboratory. First to show reserpine released brain catecholamines. Discovered dopamine in brain tissue in 1958.



THE BIRTH OF NEUROPHARMACOLOGY

1957



SYDNEY SPECTOR

American pharmacologist; fellow in Brodie's Laboratory. Showed that monoamine oxidase inhibitors increase both serotonin and norepinephrine; excitement was due to norepinephrine.

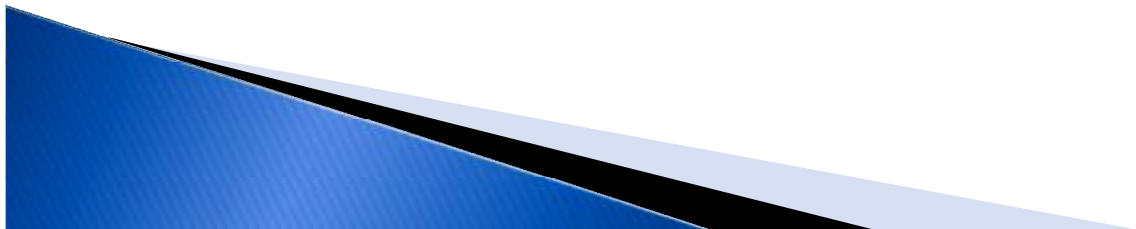
THE BIRTH OF NEUROPHARMACOLOGY

1960



ERMINO COSTA

An Italian born American physician and pharmacologist, in Brodie's Laboratory. Studied the role of serotonin, norepinephrine and dopamine in brain function, and with colleagues Garattini and Valzelli discovered that antidepressants reverse the effects of reserpine.



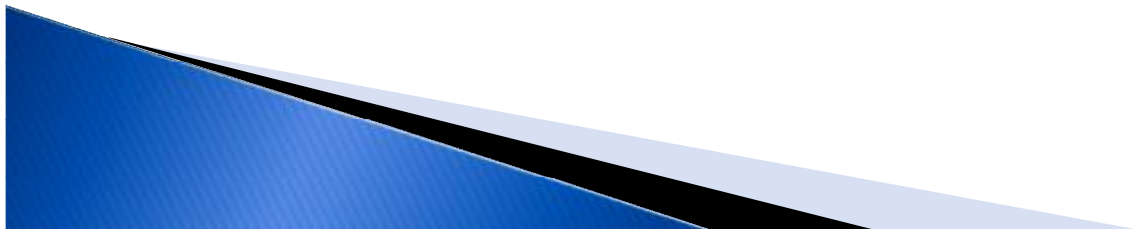


**THE BIRTH OF NEUROPHARMACOLOGY
1961**



JULIUS AXELROD

American biochemist began in Brodie's lab; Chief, Section of Clinical Pharmacology, NIMH. With colleagues Whitby and Hertting discovered that imipramine inhibits the reuptake of norepinephrine into neurons. Opened up research in the mode of action of tricyclic antidepressants. Awarded the Nobel Prize in Physiology or Medicine in 1970.





**THE BIRTH OF NEUROPHARMACOLOGY
1963**



ARVID CARLSSON

CINP Pioneer and President, 1978-1980

Swedish physician and pharmacologist; began in Brodie's Laboratory. With colleague Lundquist showed that chlorpromazine and haloperidol increased catecholamine turnover. Their findings opened up research in the neuropharmacology of neuroleptics. Carlsson was awarded the Nobel Prize in Physiology or Medicine in 2000.





THE BIRTH OF NEUROPHARMACOLOGY

1964



FRIDOLIN SULSER

CINP Pioneer

Swiss born, American physician and pharmacologist, Research Associate in Brodie's Laboratory
With colleague Bickel discovered that desmethylinipramine no longer antagonized and reversed the reserpine induced syndrome after depletion of catecholamines. Their findings opened the path for research in the role of norepinephrine in the mode of action of antidepressants.

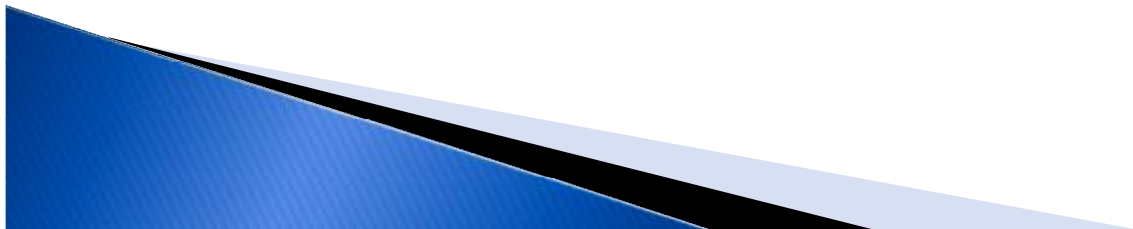
THE BIRTH OF NEUROPHARMACOLOGY

1964



MARCEL H. BICKEL

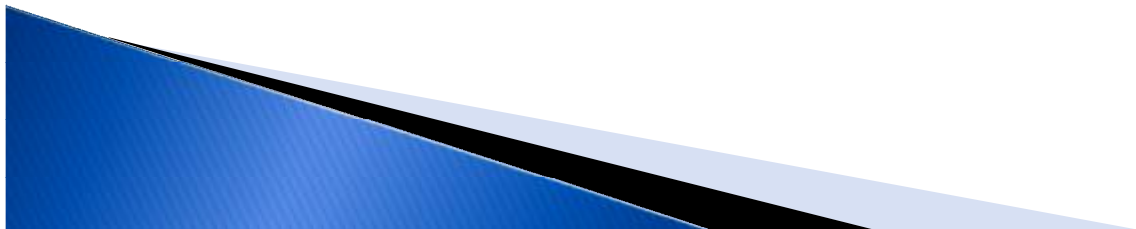
A Swiss biochemist in Brodie's Laboratory. Collaborated with Sulser on the research that led to the discovery that reserpine reversal is blocked by norepinephrine depletion.





THE BIRTH OF NEUROPHARMACOLOGY COMMENTARY

The capability to measure drug-induced changes in the level of neurotransmitters and their metabolites in the brain opened the path for neuropharmacological research to study the mode of action of psychotropic drugs. To generate hypotheses about the biochemical underpinning of the clinical states relevant to this mode of action required interaction with clinicians, the subject matter of Part Three of this photo history.





CINP would like to thank Dr Tom Ban and Dr Barry Blackwell for creating this informative set of slides. We hope you have enjoyed this brief overview. For more information on the history of CINP please go to

www.cinp.org



Acknowledgment: We would like to thank Mrs Gill Moore, CINP Executive Secretary, for transforming this photo history into a power point presentation.