ANALYSIS OF PROGRAM ACTIVITIES

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NATIONAL INSTITUTE OF MENTAL HEALTH

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Report of program activities

NATIONAL INSTITUTE OF MENTAL HEALTH
Summary of Activities
Calendar Year 1954

Sharply increased programming to develop mental health research and training opportunities, and strengthen community and hospital services throughout the country made 1954 an outstanding year in the history of the mental health movement. The Annual Governors' Conference which has been actively interested for several years in State mental health activities held its first meeting exclusively devoted to consideration of mental health needs--the National Governors' Conference on Mental Health which met in Detroit in February 1954. In addition to the Governors attending the conference, State budget officers, legislators and leading psychiatric personnel participated in the discussions. A ten-point program adopted by the Conference was designed to stimulate State action in providing more mental health services, improving hospital care, expanding research in the field of mental health, expanding resources for training mental health personnel, improving and standardizing State statistical reporting on the hospitalized mentally ill and psychiatric clinics. The Conference also recommended that inter-State compacts be made where feasible to pool research and training resources to the mutual advantage of the States concerned.

At its meeting in the preceding November, the Southern Governors' Conference of which 16 States are members had initiated similar action by instructing the Southern Regional Education Board to survey the research and training needs and resources in the member States of the Conference and recommend specific action. The National Institute of Mental Health awarded a grant to the Board to aid them in conducting the survey. It is expected that the Governors of each of the 16 States will make recommendations to the State legislatures for appropriate action to carry out these programs.

The New England States received approval from the Eighty-third Congress to make inter-State compacts for training professional and scientific personnel and are expected to move ahead on a program similar to that in the southern States.

In June 1954, the Great Lakes States held a meeting to plan action on mental health research and training, and invited neighboring States to join with them. The Pacific Coast States are also planning to combine forces for the same purpose.

Mental health research and mental health services can only expand as rapidly as qualified personnel become available to do the work. Therefore, increased resources for training personnel should provide the key to major progress on all fronts.

The summary reports on clinical and laboratory investigations at the Institute demonstrate the strides that have been taken during 1954 in developing the Institute's research activities. Due attention is being given to keeping the broad areas of exploration--biological, behavioral and medical--in balance. With the existing state of knowledge, we cannot afford to push one area at the expense of another. Today, most scientists are agreed that whether the primary causes of the various types of mental illness are found to be biological or psychological, there will be a close relationship between them, and treatment and prevention will need to proceed in both areas.

As is pointed out in the summary of the work of the Research Grants and Fellowships Branch, new scientific knowledge and new technological developments are constantly opening up areas for investigation which previously could not have been studied. Increasing emphasis on biological research in the applications for grants which are now being received reflects these advances in some measure.

The end goal of all mental health research and training programs is to provide the knowledge and the manpower for mental health services to the individual in his community and to make available the best modern hospital and clinic services to those who need them. As techniques for prevention and more effective diagnostic and treatment methods are developed, we can hope to control mental and emotional disorders, just as some of the other diseases are now controlled.

Since the passage of the National Mental Health Act in 1946, twenty-four States and Territories which previously had no type of mental health service outside the State mental hospital system have inaugurated mental health programs. The Federal grants to the States on a matching basis stimulated State and local support for such programs. However, State and local funds provided vary considerably from one State to another. In addition the shortage of qualified professional personnel and other factors make the development of State programs very uneven. In some States progress has been great, New York State, for example, appropriated $15 million for expansion of community mental health services. This sum is more than five times the amount of the Federal grants available for all 48 States, the District of Columbia and the four territories. With the program recommended by the National Governors' Conference on Mental Health and action planned by the several regional conferences, all States should be able to move forward more rapidly now.

At the beginning of the National mental health program, emphasis was placed on activities which would stimulate concrete action toward meeting basic needs in the mental health field--more trained personnel, more research, and more community services. Today, we are taking stock of special needs within the mental health field which require action. Alcoholism, drug addiction, juvenile delinquency, rehabilitation of the mentally ill, and mental health problems of aging mental deficiency are some of the problems receiving thorough review and study so appropriate activities in those areas can be incorporated into the mental health program. The reports from the Professional Services and Training and Standards Branches highlight some of these developments. In some of our clinical investigations at the Institute and in pilot projects supported by grants from the Institute, we are trying to find out what kinds of special training personnel need to work most effectively with the individual whose difficulties fall into one of these categories. We are trying to find out what techniques and methods, what skills and resources can be utilized to help such individuals.

The Warren State Hospital (Pennsylvania) study conducted by the Biometrics staff of the Institute in cooperation with the hospital staff has aroused great interest. Demonstrating the kinds of information that can be obtained from hospital records, the study highlights the importance of cohort studies for continuous evaluation of hospital policies and practices. As

the study points out, for example, such knowledge is essential for any evaluation of the effectiveness of a given type of treatment. A number of States in the Model Reporting Area are undertaking similar cohort studies.

Because of the many professional and non-professional groups who are working with people in a guidance, counseling or similar capacity, the Publications and Reports staff prepared five pamphlets in a series designed to summarize the contribution each of these groups can make toward constructive action for people who present mental health problems. The enthusiastic response we have received to these brief publications demonstrates the real interest each group has in doing a good job. These groups are allies of the mental health professions in the work of building sound mental health and preventing mental and emotional disorders from becoming chronic handicaps.

The following summaries and project descriptions present in some detail the work being done by the National Institute of Mental Health, and illustrate the dynamic and forward-looking nature of the work being done by the Federal government in cooperation with the States, private foundations, professional and voluntary organizations, and the research and training centers of the country to control mental illness.

ANNUAL REPORT OF THE BASIC RESEARCH PROGRAM, NIMH-NINDB

JANUARY 1 TO DECEMBER 31, 1954

Seymour S. Kety, Scientific Director

The human nervous system constitutes the most complicated yet most beautifully designed instrument in the universe and, despite the gratifying strides which have been made toward understanding its functions and disorders, our ignorance here remains great and challenging. This ignorance is demonstrated by the fact that mental and nervous disease still constitute the greatest cause for disability in all the countries of the world, including our own. Research in these areas must encompass careful, critical studies of these diseases as they occur in patients, but, equally important, it must also include those fundamental studies designed to increase our knowledge of the structure and function of the nervous system in health and in disease. It is for this reason that the two Institutes at the National Institutes of Health primarily concerned with mental and neurological diseases have pooled their resources for basic research into a single combined program. Since it is difficult, if not impossible, to predict from which basic research areas will come information of greatest practical diagnostic or therapeutic value, a well-balanced program must include representative research in all of the major areas. Such a program also makes assured the most fruitful collaboration and exchange of information between disciplines for the mental and neurological diseases do not confine themselves rigidly to the nervous system alone or to only one aspect of its function, and the great contributions to medicine in the past have usually arisen as a result of the utilization of knowledge acquired by many investigators in many different fields. By drawing together outstanding representatives of all of the relevant sciences, any new finding in one laboratory can be subjected to critical analysis by all of the other disciplines and immediate exploitation of its ramifications throughout as many different fields as possible.

By the end of year 1954, this purpose had been realized for the Basic Research Program of NIMH and NINDB. This program now has eight Laboratories, and a total staff of 55 professional and 70 supporting personnel actively at work over a broad spectrum which ranges from neuroanatomy, physiology, and biochemistry through the psychological and sociological fields. The completion of the laboratory space in the Clinical Center allocated to the Basic Research Program occurred in the latter part of 1954, permitting the establishment of two new laboratories. The program was fortunate in the appointment of two outstanding scientists as laboratory chiefs: To the Laboratory of Cellular Pharmacology, Dr. Giulio L. Cantoni, well-known for his discovery of active methionine, responsible for many of the biochemical transformations which take place in the organism, and Dr. Kenneth S. Cole to the Laboratory of Biophysics, a scientist whose classical studies of the electrical properties of conducting nerves laid the groundwork for the most important contributions to neural transmission which have thus far been made. The Laboratories of Neuroanatomical Sciences, Neurophysiology, Neurochemistry, Psychology, and Socio-environmental Studies, and the Addiction Research Center at Lexington, Kentucky, established in previous years have completed their organization and continued productive activity.

The research of the various laboratories for the past year and their plans for the future can best be described in terms of certain important areas of knowledge including structure, function, and metabolism of the nervous system, the biochemical basis of therapy, the study of drug addiction, the development, regeneration and aging of the nervous system, perception and behavior, and human relations.

THE STRUCTURE OF THE NERVOUS SYSTEM

Unlike many organs which are homogeneous in structure and perform well-defined functions, the brain is a baffling collection of thousands of individual components controlling many different functions and communicating with each other by a magnificently developed network of fibers and pathways. Many of these pathways are still obscure and a primary function of the Laboratory of Neuroanatomy under Dr. William Windle is to find the order and the organization of the nervous system. In the past year, Dr. Rasmussen, well-known for his previous discoveries of important new fiber tracts, has been tracing the little understood frontopontine tract (NINDB L-31) in man, a pathway which goes from the frontal part of the brain to important areas in the brain stem and which is one of the fiber tracts which is cut in the operation of frontal lobotomy. His studies have also included the tracing of fibers from the brain into the spinal cord, knowledge of which is almost completely lacking and yet important to our understanding of coordinated motor activity and spastic states (NINDB L-30). Dr. Rasmussen is also continuing studies of pathways involved in hearing (NINDB L-28 and L-29). Anatomical and physiological research has long been plagued by the lack of a technique for demonstrating the precise termination of nerve fibers within the brain and spinal cord. Further perfection of a technique developed elsewhere by Nauta has made available a method which appears to be adequate for the determination of the precise endings in the central nervous system of the minute ramifications of nerve fibers (NINDB L-30). This has opened a door long closed to investigators in neurology.

The physical and anatomical properties of the spinal cord and its coverings having to do with the support of blood flow to and from this organ and playing a role in the prevention of edema under certain adverse circumstances are being studied in comparative anatomical and physiological experiments (NINDB L-12 and L-22).

Although classical neuroanatomy was dependent upon empirical examination of nervous tissue stained by various dyes, newer techniques have in recent years placed in the hands of scientists cytochemical methods for the study of structure which are infinitely more precise, more exact and more closely related to function and metabolism. These techniques permit the detailed chemical analysis of individual cells in the nervous system either by specific chemical stains or by actual microchemical analysis of single neurones. Alert to these new possibilities, the Laboratory of Neuroanatomical Sciences has established a Section on Neurocytology where Drs. Albers and Guth are developing and perfecting their tools for this research (NINDB L-17, L-18 and L-19). Studies employing some of these techniques are being applied

to the effects of anesthetics upon the cells of various parts of the nervous system (NINDB L-21) and the distribution of gamma-aminobutyric acid, a substance found only in the central nervous system (NINDB L-16). Dr. Cammermeyer, Visiting Scientist in Experimental Neuropathology, is investigating the structure and reactions of the area postrema (NINDB L-24) in a number of different species in an effort to define the nature and function of this structure which seems to be intimately concerned with the nutrition of the brain, the production of cerebrospinal fluid, and may even have a still unprobed function in the production of hormones. With the pending appointment of an outstanding specialist in the application of electron-microscopy to the nervous system (NINDB L-13), this important tool to studies of the structure of the nervous system will be added.

FUNCTION OF THE NERVOUS SYSTEM

The essential function of the nervous system is to receive, evaluate, and store information from the outside world and to use this information in determining present and future behavior in such a way as to achieve coordinated, purposeful and useful activity. It is well established that in order to perform this function, the nervous system operates in a manner similar to that of a beautifully organized communication network, like such a network, employing electrical messages, and utilizing ingenious components of which man-made transmitters, receivers, amplifiers and relays are merely the crudest counterparts. To investigate the functional or physiological phenomena which occur in the nervous system and which mediate behavior, the combined research program has established two laboratories, one in biophysics and the other in neurophysiology, organized to explore most of the ramifications of this vast field from the properties of single microscopic components to the characteristics of organized activity at the very highest levels.

Neural Transmission. Of fundamental importance is the nature of the electrical impulse itself which mediates the activity of the nervous system by its transmission along the nerve fiber. A number of projects of these two laboratories have been established to study various aspects of the nerve impulse in an effort to determine how it originates and the factors which modify it, normally and through the influence of drugs and disease. Dr. K. S. Cole, some fifteen years ago, reported studies on the instantaneous conductivity of the nerve fiber during activity which formed the basis of the present concept of the origin of the nerve impulse. This concept attributes the action potential of the nerve to the differential migrations of the charged ions, sodium and potassium, across the nerve membrane. Since this action potential passes any single point in a matter of a few thousandths of a second, these ionic movements must be rapid enough and of sufficient magnitude to account for the changes. The present work of Dr. Cole and his staff (NINDB L-45, L-46, and L-47) is a further development of this theory and its testing by appropriately designed experiments. From the laws of diffusion, coupled with our knowledge of the structure of the nerve fiber and of the properties of the ions involved, it is possible to set up a complex mathematical theory which can predict the formation and behavior of

the nerve impulse under a variety of experimental and pathological conditions. The equations involved are sufficiently complex as to tax the most advanced mathematical concepts and only the recent development of elaborate electronic computers has made practical some of the solutions. Once the fundamental equations are set up, they may be varied by the substitution in them of appropriate factors corresponding to changes in the physiological and pathological states, the solutions then yielding a prediction of what the actual behavior would be. These predictions are then tested against actual experiment using a simple nerve fiber, the giant axon of the squid, as a model. In this way, the theory upon which the mathematical equations are based can be validated. Such comparisons, though limited, have been so satisfactory as to encourage the assumption that these ionic movements and the mechanisms by which they are controlled are a fundamental component of normal and pathological nervous processes. Such findings raise other and equally interesting questions. The fundamental question to be resolved and one which occupies the interest of many outstanding scientists throughout the world is the manner by which the nerve cell, utilizing energy received from the oxidation of foodstuff, can so direct the movements of sodium and potassium as to create the electrical energy needed in its transmission of impulses. Dr. Rich of the Section on Physical Chemistry (NIMH-9) has developed an ingenious theory to account for this process applying information on coupled diffusion, well-known in the field of physical chemistry, to the problem of movement of sodium ions against a diffusion gradient. His group is now in the initial stages of testing this theory. Dr. Tasaki, well-known for his previous contributions to sensory and axon physiology, with his staff at these Institutes has tackled other phases of the problem of nerve transmission. In the past year (NINDB L-36) by means of interesting new techniques which they have developed, an action potential of 100 millivolts was demonstrated to play a decisive role in the initiation and propagation of the impulse in peripheral nerve. They have further described the physical and electrical properties of the nerve fiber and made measurements during the passage of the nerve impulse which are more accurate and less damaging than those of previous workers. These studies will be continued and expanded in the coming year (NINDB L-39 and L-40).

Neuronal Interactions. Next in the level of complexity above the impulse in the nerve fiber is the important question of how nerve cells interact and communicate with each other. Clarification of this single problem would constitute a real landmark in the study of nervous function. Dr. Frank, Chief of the Section on the Spinal Cord, often in collaboration with Dr. Fourtes of the Army Medical Center has addressed himself to this question (NINDB L-32, L-33, and L-34). By means of electrodes so fine that they can be inserted into single cells with a minimal amount of injury and by amplifiers of sufficient sensitivity, the electrical output of single nerve cells in the spinal cord can be recorded. Among the findings of this group are the discovery of certain cells in the spinal cord which respond to a wide variety of peripheral stimuli and which these workers have called "alerting cells" because of the possibility that they serve such a function in the normal animal alerting the spinal motor system of the organism to further purposeful behavior. These workers have found other cells in the spinal cord which are capable of responding to peripheral stimuli with frequency modulated trains

of impulses, suggesting that such modulation conveys information regarding the source of the stimulus. Dr. Frank's report, at a recent meeting of neurophysiologists, of the finding of certain "pacemaker cells" capable of initiating their own characteristic rhythms (NINDB L-33) was generally regarded as one of the most significant contributions reported.

The Hypothalamus. This collection of nuclei lying at the base of the brain and just above the pituitary plays an important role in the regulation of many of the bodily functions including temperature, certain aspects of metabolism, and many of the vegetative functions of the circulation. Recently, the hypothalamus has emerged as the important link between the nervous system on one hand and the endocrine glands on the other by the control which it exercises over the master gland of the body -- the pituitary. The hypothalamus also appears to be involved with certain emotional states in a way which is not yet clear so that its implications in psychiatry and clinical medicine are readily seen. Dr. Brightman, recently appointed to the Laboratory of the Neuroanatomical Sciences, is investigating the relationships between the hypothalamus and certain endocrine functions (NINDB L-10 and L-11). By means of special staining technique, the neurosecretory content of the hypothalamus and parts of the pituitary under special conditions can be evaluated and shown to be altered by changes in environmental conditions. His studies to date have shown a relationship between neurosecretory material in the mother and the advent of suckling and milk ejection. These experiments will be expanded to observations upon other important members of the endocrine system to explore these neurohumoral relationships. Another important function of the hypothalamus is the regulation of temperature and body metabolism. A recently appointed investigator to the same laboratory, Dr. Massopust, is investigating the mechanisms of temperature control in the hypothalamus (NINDB L-25) and elsewhere (NINDB L-26) and the action of certain agents which alter temperature (NINDB L-27). His studies to date have localized certain areas of the hypothalamus in which temperature control appear to be confined and altered accepted concepts of the pathways by which temperature regulation is modulated through the spinal cord. Incidental findings have fortified knowledge of the other roles of the hypothalamus in metabolism, emotional states, and the sexual cycle. The use of hypothermia in modern cardiac surgery lends added significance to studies upon the control of temperature.

The Cerebral Cortex. In this, the outer gray layer of the brain, have been thought to reside the highest functions of perception, learning, and judgment. Speculative as this may be, there is little doubt that the cerebral cortex represents a most highly developed and organized portion of the central nervous system. Two groups of investigators have concerned themselves primarily with different aspects of the function of this structure. Dr. Marshall, Chief of the Laboratory of Neurophysiology, who before his appointment to NIH had laid the groundwork of our present knowledge of the sensory functions of the cerebral cortex, has more recently devoted considerable attention to the subarachnoid space (NIMH-2), the collection of delicate membranes and cerebrospinal fluid which overlies the cortex. By improved methods of measuring the oxygen tension and directional blood flow in the cortex, he has studied the effects of the blood-brain barrier on the action

of certain drugs. Other members of this section have measured the electrical resistance of the cerebral cortex (NIMH-5) applying to it techniques similar to those which have earlier been used in peripheral nerve. Dr. Freygang has recently succeeded in recording the electrical activity of single cells of the cerebral cortex as part of an investigation of this activity and the effects upon it of intracellularly applied currents (NIMH-6).

Dr. John Lilly, who was appointed Chief of the Section on Cortical Integration in the Laboratory of Neurophysiology because of his original contributions in that field, has continued his research on the spatial and temporal patterns of electrical activity on the surface of the cortex. By means of a closely packed array of 25 electrodes recording simultaneously, the electrical activity on the surface of the conscious brain is amplified and displayed so as to preserve its spatial and temporal patterns (NIMH-7). In the past year a type of electrical waveform has been developed which does not injure the cells of the brain. This incidental development is a significant practical tool for the neurophysiologist, the neurosurgeon, and others who require a safe and convenient technique for examining and stimulating the human brain in diagnosis and therapy.

Plans for the next year include an initiation and expansion of studies in the functional relationship of the reticular formation of the brain stem, that area recently demonstrated to be an important crossroads for ascending and descending impulses and capable of playing an important role in the coordination of motor activity, the control of the autonomic system, and in sleep, coma, and emotional states.

The Special Senses. At least three investigators in the Basic Research Program, Dr. Marshall, Dr. Tasaki, and Dr. Rasmussen, have in the past made significant contributions to our understanding of vision and hearing. In the past year they have continued their interest in these important fields in a number of specific research projects. Dr. Rasmussen, some years ago, made the new and startling discovery that the auditory nerve, formerly thought to be a pure sensory nerve, contained fibers which conducted impulses from the auditory areas of the cerebral cortex to the cochlea or organ of hearing. This system evidently represents an auditory "feedback" mechanism whose function is still obscure and which he is continuing to investigate (NINDB L-28). He is also studying the autonomic innervation of the inner ear which is generally assumed to play an important role in the proper functioning of the hearing and equilibratory organs. Disturbance in this supply is thought by many otologists to be responsible for a number of disorders such as Meniere's Disease (NINDB L-29).

Although much is known of the anatomy and physiology of various sense organs, no answer is available to the important question of how a particular receptor converts the signals which it receives from the external world into the coded electrical messages which it transmits to the brain. Dr. Tasaki of the Section on Special Senses of the Laboratory of Neurophysiology is continuing his intricate and significant studies in this area (NINDB L-37).

He has also begun a study of the corresponding question in the visual system with the development of techniques and equipment for recording the electrical responses of individual sensory elements in the retina in response to various light stimuli, a study which is expected to shed some light upon the mechanism of color vision and visual physiology in general (NINDB L-38). Dr. Marshall, whose earlier work is regarded as a landmark in visual physiology, has continued his studies of the functional activity of the lateral geniculate nucleus, the important relay station where visual impulses can interact with themselves and with other impulses before passing on to the appropriate areas of the cortex (NIMH-3). These studies became even more interesting in the past year when Dr. Evarts, working with Dr. Marshall, found that an important site of action of the hallucinogenic drug, LSD, was in this visual nucleus. The effects of this same drug on visual function in man are being investigated by Dr. Carlson and Dr. Evarts in the Section on Perception and Learning of the Laboratory of Psychology (NIMH-38-C), where measurable effects upon dark adaptation have already been demonstrated. This section is also developing an ingenious technique for recording eye movements electrically which promises to be a valuable tool in studies of visual perception (NIMH-40). Much of the activity of this section revolves around studies of visual discrimination and perception in animals and man (NIMH-39, 41, and 42).

THE METABOLISM OF THE NERVOUS SYSTEM

The Basic Research Program has secured a wide distribution of competence and interest throughout the important field of the biochemistry of the nervous system from the most basic levels of cellular chemical structure and metabolism through the peculiar biochemical processes of nervous tissue to the nutrition and metabolism of the living brain in health and disease.

The Section on Physical Chemistry under Dr. Rich has chosen as its focus the elucidation of the chemical structure of certain cellular components of fundamental importance. By means of the modern technique of X-ray diffraction measurement (NIMH-13) coupled with standard biochemical methods (NIMH-12, 14, and 15), investigations are under way on the structure, properties, and synthesis of ribonucleic acid, the large molecule within the cell which is believed to be the template upon which the cell constructs the highly specific and complex protein molecules vital, in the nervous system, to the structure, growth, and specific metabolism of the nerve cell. The electron microscope has recently yielded evidence that ribonucleic acid bodies are concentrated at the junctions between nerve cells where lie the integrative and possibly the retentive powers of the nervous system. Other substances, notably those incorporating a heavy metal in a complex organic molecule are being investigated by Dr. Dunitz, Visiting Scientist from Oxford (NIMH-10 and 11). Such compounds are of great significance in biology and include hemoglobin and cytochrome, necessary for oxygen transfer to the neurone, insulin, vitamin B_{12}, and numerous enzyme complexes vital to metabolism. At least one disease of the nervous system (Wilson's Disease) has been shown to be related to an abnormality of copper metabolism in the brain, while the effects of lead and other metallic poisoning are undoubtedly related to lead-complex formation in

the cell. Such complexes with sodium or potassium may lie at the root of the generation of the electrical energy of the nervous system, although one new project of this section (NIMH-9) proposes to test an ingenious and original theory in an attempt to discover the source of this energy.

The Section on Lipid Metabolism under Dr. Brady, who previously made a significant contribution to knowledge of fatty acid synthesis, has concerned itself with the metabolic processes by which the lipids, which constitute a large and still mysterious fraction of brain substance, are formed, converted, and utilized. Research begun in collaboration with Dr. Stadtman of the Heart Institute has demonstrated the presence of new enzymes in brain and other tissues important in the synthesis of energy-rich sulfur compounds which are probably related, in turn, to certain syntheses necessary to nervous function: fatty acids, cholesterol, and acetylcholine (NINDB L-42). Investigation is continuing in order to define the mechanism of utilization of ribose, a 5 carbon sugar, previously demonstrated by members of the section and offering an alternative source of energy and a possible building block for brain lipids (NINDB L-41). Recent demonstration of the excretion of ribose in patients with muscular dystrophy (NINDB-19-C) gives added significance to this study. A major activity of the section lies in the study of acetyl coenzyme A, a complex and recently discovered substance which stands at the crossroads of many metabolic and synthetic processes. It represents the probable pathway by which carbohydrates, fats, and proteins are oxidized for energy and is an important intermediate in lipid synthesis and the formation of acetylcholine, crucial to the transmission of the nerve impulse. This section has synthesized a new compound, fluoroacetyl coenzyme A, which holds promise of explaining many of the activities of the naturally occurring analogue (NINDB L-43). A final step in the study of brain lipids is to relate this basic biochemical information to the specific problem of how particular brain lipids are synthesized. This will be undertaken in a new study (NINDB L-44) of the biosynthesis of cerebrosides which constitute a large fraction of the brain lipids.

Studies of the metabolism of cells and brain tissue performed <u>in vitro</u>, although of inestimable value to basic understanding of brain chemistry, must constantly be related to the metabolism of the living and thinking brain, whether in health or in disease. This is the central purpose of the Section on Cerebral Metabolism. By means of the nitrous oxide technique developed a decade ago by one of its staff, measurements are being made on the circulation and oxygen consumption of the human brain to study the effects of aging, of anxiety, and of a number of hallucinogenic or therapeutic drugs (NIMH-16). Cerebrovascular disease is one of the leading causes of death and disability while senescence has been shown to be associated with a diminution in the nutrition and metabolism of the brain. Continued work of this section is expected to increase our understanding of these problems. Drs. Sokoloff and Kety are directing a project for the Naval Aero Medical Research Laboratory toward the measurement by means of radioactive krypton of rapid changes in human cerebral circulation which may occur in aerial maneuvers (NIMH-17). A few years ago Dr. Sokoloff of this section demonstrated that in hyperthyroidism, or toxic goiter, the brain did not participate in what before

had been thought to be a generalized increase in body metabolism. Present work of the section seeks to explain this phenomenon by means of studies on the blood-brain barrier and the effects of thyroid hormone on the characteristic features of brain metabolism (NIMH-18). During the past two years Dr. Kety and several colleagues have developed a technique for the measurement of local circulation in the brain and applied it first to studies in normal and anesthetized cats (NIMH-19). Values for blood flow in 30 individual regions of the brain have been obtained for the first time, and many of the findings have been surprising and suggestive of a new approach to local functional activity in the normal state. Studies on various hormones and drugs (serotonin, epinephrine, LSD) as well as the important question of cerebrovascular spasm are contemplated.

Other studies on the metabolism of the nervous system in aging (NIMH-32 and 33) and on various chemical components of individual cells and tissues (NINDB L-16, L-17, L-18, and L-19) are described elsewhere.

FUNDAMENTAL STUDIES ON HORMONES AND DRUGS

Although pharmacology and endocrinology have made important practical contributions in the past several decades, our information to date concerning the action of hormones and drugs is largely descriptive. Little is known of the fundamental mechanisms whereby these endogenous and exogenous agents exert their effects and yet it is just such information which is needed for the synthesis of new drugs developed to produce specific therapeutic effects. It was with this concept in mind that the Laboratory of Cellular Pharmacology was established this year to investigate the enzymatic and other biochemical mechanisms of drug and hormone synthesis and their action in the body. Studies of cell metabolism and cellular function as a whole, involving a variety of different techniques and approaches, appear to be the only means of acquiring a definitive understanding of the mechanism of drug action.

The present and projected activities of the laboratory fall within three main areas: Studies on biological methylation; studies in comparative biochemistry; and studies on the interrelation between amino acid metabolism and the tricarboxylic acid cycle. These three areas are not entirely separate but, in fact, overlap to a considerable extent so that the individual projects to be described separately emerge from a broad continuum of common interest and background. For this reason and also because of its recent organization, the laboratory has operated as a unit and has not yet been divided into sections.

The biological methylation mechanisms appear to be of particular interest in cellular pharmacology. It is well-known that methylated compounds like acetylcholine, epinephrine and others play a fundamental role in neurophysiological phenomena such as conduction and transmission of the nerve impulse and that the chemical structure of many drugs having marked neuropharmacological activity (e.g., nicotine, morphine, bufotenin, eserine, etc.)

reveal the presence of a methyl group attached to an nitrogen, sulfur, or oxygen atom. At the present time the most satisfactory working hypothesis suggests that the methyl group in all these cases is derived from the amino acid, methionine. On the basis of the well recognized work of Dr. Cantoni, Chief of this Laboratory, it seems clear that the activation of methionine by energy-rich phophorus compounds is a prerequisite to the transfer of its methyl group. An elucidation of the enzymatic mechanism of this reaction (NIMH-21) would therefore be a great advance in our understanding of the importance of methylation mechanisms in cellular metabolism and, specifically, in brain metabolism. Moreover, the significance of the reaction catalyzed by the methionine activating enzyme is not limited to transmethylation but is of importance in the area of energy metabolism and, as such, is of general biological interest. Many of the drugs such as morphine and mescaline, which act on the central nervous system, contain in their molecule a specific methyl-oxygen or methoxy group. Furthermore, alteration of this structural feature leads to changes in the pharmacological activity of the drug. Little is known of the biological origin of these methoxy groups and any information gained in this connection (NIMH-22) will be useful, leading perhaps also to a better appreciation of the basis upon which the pharmacological effects on the central nervous system are founded. In general, chemical compounds containing a positively charged nitrogen or sulfur atom ("onium" compound) have profound effects, both inhibitory and excitatory, on neural tissue, and have found extensive pharmacological application. The existence of an intimate relation between "onium" compounds, e.g. acetylcholine, and normal neural function is certain. The contemplated studies of the biochemical mechanism for formation and utilization of this type of chemical agent (NIMH-23) are likely to increase understanding of normal and deranged neural function.

The problem of selective toxicity or specificity in pharmacological response must be regarded as the central problem in pharmacology. It has been recognized for a long time that chemotherapy and selective toxicity are intimately related, yet a definition of the problem of specificity of pharmacological response in terms of enzyme mechanisms has not been formulated clearly and has been demonstrated even less adequately. Probably this specificity is related to the fact that the enzymatic equipment of different cells and tissues is different. Generally, it is agreed that quantitatively and qualitatively the enzyme composition of different cells and tissues varies considerably and that it is related closely, though not always obviously, to cellular function. However, it has not been generally appreciated that in different tissues of a single animal species, or in the same tissue of different animals, enzymes which catalyze the same reactions may be different also. If specificity of drug action is to be related to discrete differences in the enzymatic make-up of different cells or tissues, more investigations are required in the field of comparative enzymology. A steady, long-range effort in this direction is required (NIMH-25) and early spectacular results are not to be expected. However, studies of this kind may provide in due course a basis for a more rational approach to drug therapy. Moreover, it is possible that some insight might be gained through this type of approach into the problem of the nature and mechanism of enzyme synthesis.

The third phase of the activity of this laboratory is in the relationships between the intermediary metabolism of carbohydrates and amino acids (NIMH-24), a study recently begun by Dr. Seymour Kaufman. There are numerous examples of how progress in the field of intermediary metabolism has provided a clearer picture of certain biological phenomena. The elucidation of the mechanism of anaerobic glycolysis, for example, has had a profound impact on our understanding of the process of muscular contraction. Besides the possible contribution of this study to fundamental biochemistry, the recent use of certain amino acids in the therapy of mental retardation and convulsive states suggests the need for further research in their metabolism.

Future research in this area, besides the prosecution of the projects already planned and initiated, should include investigations on the mechanism of synthesis of alkaloids and other drugs by plants and the production and metabolism of animal hormones (NIMH-27). Little is known of the relationship between alkaloids and closely related compounds such as the vitamins or coenzymes. However, similar metabolic origin is strongly suggested and this, in turn, indicates the possibility of close physiological relationship between vitamins and alkaloids. Such a program, in the light of recent advances in enzyme chemistry and intermediary metabolism, appears to have excellent prospects of yielding valuable information.

STUDIES ON DRUG ADDICTION

The Addiction Research Center of the National Institute of Mental Health, under the leadership of Dr. Harris Isbell, at the Public Health Service Hospital in Lexington, Kentucky has continued its important and useful work on the mechanisms of narcotic addiction and the testing of new analgesic drugs for addictive liability.

Addiction Liability Testing. This particular phase of the activities of the Addiction Research Center is carried out as a public service. As new drugs are developed by the pharmaceutical industry they are sent to the Center by the Committee on Drug Addiction and Narcotics of the National Research Council for evaluation of their addictive properties. Drugs which are shown to be addictive are placed under the provisions of the Federal Narcotic Acts by proclamations of the President. During the year (NIMH-43) nine new analgesics were evaluated; four of these proved to have addicting potentialities and five were devoid of such action. Studies on four other new analgesics are currently in progress. The properties of three new morphine antagonists were also evaluated. Chief interest in this project continues to be focused on the morphine antagonists and on mixtures of analgesics and antagonists.

Part of the addiction liability testing program is carried on in collaboration with the Department of Defense and designed to develop a synthetic substitute for codeine. Such a substitute is needed in order to free the nation from the necessity of stockpiling opium against the possibility of war. The most significant development in this project was the finding that narcotine is devoid of addiction liability. This substance has been shown to

suppress cough in animals and its clinical antitussive value is now being investigated elsewhere. Narcotine is the second potential substitute for codeine developed through this program.

Chronic Barbiturate and Alcoholic Intoxications. It was found that an occasional patient who had been taking 0.6 gm. of secobarbital or pentobarbital daily would develop convulsions or a mild delirium following abrupt withdrawal of the barbiturate. The incidence and severity of symptoms following withdrawal of barbiturates after intoxication with 0.4 gm. daily is now being determined. The ultimate purpose of this project (NIMH-45) under Dr. Fraser is to determine the minimal level of barbiturate intake which will create a definite degree of physical dependence.

Electroencephalograms obtained during a cycle of experimental alcoholic intoxication for the previous year were completely analyzed. A definite pattern, which paralleled the development of "metabolic" and "tissue" tolerance, was detected. It was also shown that substitution of alcohol for barbiturates in persons strongly addicted to barbiturates decreased the expected incidence of paroxysmal activity, indicating partial physiological equivalence of chronic barbiturate and alcoholic intoxications.

Emphasis in the field of barbiturate and alcoholic intoxications is being shifted from clinical investigations to laboratory studies, using animals, in the hope of developing a better understanding of the pathologic physiology of these conditions and in the hope of developing means for evaluating various therapeutic regimes.

Intoxications Other Than Analgesics, Barbiturates, and Alcohol. Chief interest in this field has been centered on the hallucinogenic drug, LSD-25 (diethylamide of lysergic acid). Acute intoxication with this drug has been termed "experimental schizophrenia," but practically no chronic work has been done with it. In patients studied by Dr. Isbell (NIMH-44), the drug induces a characteristic syndrome mimicked in toto only by mescaline. Although isolated symptoms which occur in schizophrenia are observed during acute LSD-intoxication, the total symptom-picture does not entirely resemble that of schizophrenia. Definite relationship between the size of the dose of LSD-25 and the degree of "mental" and "non-mental" effects was observed. LSD produces distinct changes in the Minnesota Multiphasic Personality Inventory, consisting of statistically significant elevation on the Pt (psychasthenia), Sc (schizophrenia), Pa (paranoia), SI (social introversion), and the Taylor Anxiety Scale. During chronic administration of LSD, the original spectacular effects can no longer be obtained after two or three days administration of one dose daily. Once this tolerance has developed, it is not completely overcome by increasing the dose as much as four times. Tolerance is lost as rapidly as it is developed since the degree of LSD-effect reaches levels observed prior to chronic intoxication after three days of abstinence.

During the coming year, it is expected that much less work will be done with LSD. Trial of the drug, bufotenine, which is chemically related to

serotonin and induces symptoms in the monkey resembling those caused by LSD, will be made. Investigations of the cardiovascular effects of some drugs in the cannabinol (marihuana) group will be undertaken. Studies on the psychological effects of some sympathomimetic amines will be initiated.

Biochemistry of Addiction. Work in this field under Dr. Eisenman continued to be centered on the changes in the functions of the endocrine system induced by acute and chronic administration of morphine (NIMH-46). Previous experiments had shown that morphine depressed the excretion of 17-ketosteroids in male patients and that withdrawal of morphine was followed by a marked "rebound" in excretion of these substances. During the current year, we have found similar changes in the excretion of the corticoids derived solely from the adrenal glands during morphine addiction and withdrawal. Evidence suggestive of a decrease in the excretion of pituitary gonadotropin was also obtained. The activities of the biochemical unit will probably soon be shifted to the fields of drug metabolism and enzymology.

Neuropharmacology of Chronic Drug Intoxication. It was found by Dr. Wikler and his colleagues that the development of physical dependence on morphine in chronic spinal animals is completely prevented by the administration of large amounts of Nalorphine every three hours. This work (NIMH-48) complements that described above in the section on Addiction Liability Testing with respect to mixtures of analgesics and antagonists. A beginning was made in determining the neuropharmacology of acute and chronic barbiturate intoxication. Attempts to develop physical dependence on alcohol in dogs were initiated during the year but the experiments are incomplete. Trend in the activities of this section will be a gradual shift from studies on analgesic drugs to the elucidation of the mechanisms underlying other drug intoxication.

Experimental and Clinical Psychology of Addiction. In the preceding calendar year, Dr. Hill developed a method for determining the effects of morphine on the conditioned inhibition of a feeding response in rats. His application indicated that morphine was reducing anxiety in the rats in anticipation of a painful stimulus. Specificity of the method has been under test during the current year (NIMH-47). It is hoped that this method will provide another means of testing new drugs for pain relieving properties. It was also demonstrated in man that the effects of morphine and pentobarbital on reaction time were greatly affected by altering the motivation of the subjects used in the experiment (NIMH-47). Such a demonstration of marked variation of drug effects by altering the situation in which the drugs were given is of great theoretical and practical importance.

Plans for the coming year include extension of the experiments on the effect of motivations on drug effects, beginning of attempts to condition phenomena of physical dependence, and the development of inventories for assessing the subjective effects of the classes of drugs in which the NIMH Addiction Research Center is interested.

DEVELOPMENT, REGENERATION, AND AGING OF THE NERVOUS SYSTEM

A group of related properties of the nervous system, important not only for their fundamental nature but also because they are intimately involved in certain mental and neurological problems of national significance, are its ability to grow, its commonly accepted inability to regenerate, and its tendency to mature and grow old and less effective. Several groups of investigators in the Basic Research Program are attacking many phases of these associated problems.

Development and Regeneration. Dr. William Windle, Chief of the Laboratory of the Neuroanatomical Sciences and well-known as a neuroembryologist even before his recent and promising research on nervous regeneration, has organized an important Section on Development and Regeneration primarily concerned with these problems. During the past year he has initiated a systematic study of the embryological development of certain fiber tracts and nuclei in the human embryo based upon material which has been collected during the past twenty years and prepared by certain silver staining methods to bring out finer details of neuron growth (NINDB L-8). Knowledge of the intrinsic development of the human brain is fundamental to a clear understanding of adult brain anatomy and physiology, yet little is known of this intrinsic structural development at present.

Certain aspects of the "doctrine of specific nerve energies" are being re-examined. When mammalian peripheral somatic nerves are cut and transposed in such a way that fibers of one are directed in their regeneration toward the end organs of another, it is held that no functional restitution ensues. The end organs appear to be incapable of inducing neuronal specificity in the nerve in question, at least in mammals, although this process has been shown to occur readily in certain lower forms. The situation has not been adequately examined and put to scientific tests in the case of the autonomic nerves in mammals. Studies during the past year by Dr. Guth of this laboratory (NINDB L-14 and L-15), involving transplantation of the central stump of the severed vagus nerve of the cat into the sympathetic trunk so that the fibers regenerated toward the superior cervical sympathetic ganglion, revealed some functional restitution. Vasomotor reflexes became re-established by preganglionic parasympathetic neurons which formed synapses with postganglionic sympathetic neurons in the superior central cervical sympathetic ganglion, indicating that even in mammals one nerve may be made to regenerate and substitute for another.

Abnormalities in fetal or neonatal development may be responsible for certain types of cerebral palsy and mental retardation. A project on which little new work has as yet been done has to do with asphyxia during birth and its effects upon the structure and function of the brain (NINDB L-9). The initial experiments, carried out several years ago, demonstrated in guinea pigs that neuromuscular disorders resembling certain aspects of cerebral palsy in man resulted from asphyxia neonatorum. Furthermore, impairment of intelligence and learning ability was demonstrated in animals which had recovered from the neuromuscular disorders. This direct evidence that

asphyxiation at birth, not only can lead to cerebral palsy but may also be one of the causes of mental defectiveness, needs to be explored further. Within a short time additional experiments along this line will be in progress and effects of obstetrical anesthetics will be studied. There is reason to expect that this type of research will point a way to preventive measures in man.

Dr. Gordon Allen in a cooperative study at the New York Psychiatric Institute with Dr. Franz Kallman, a noted authority upon the genetics of mental disease, has been investigating the genetic and congenital aspects of mental deficiency by studies upon twin families in which one or both members of the pair have been diagnosed as mentally defective. During the past year he has increased the number of cases in his sample to 539 sets of twins, 12 sets of triplets, and 2 sets of quadruplets (NIMH-63). The careful clinical and psychological tests of these individuals along with studies of their blood grouping are still continuing and statistical analysis of the results will be made during the forthcoming year.

Research on the subject of regeneration in the central nervous system constitutes a major endeavor of Dr. Windle's laboratory and was the first project to be activated. The subject has been reviewed recently by 33 participants to a conference held at the NIH in May 1954. A monograph with complete bibliography is now in the process of publication (NINDB L-2). Central nervous regeneration occurs readily in certain lower forms of animals such as amphibians, but does not occur readily in mammals and is said not to occur in man. It has been found possible to bring about some regeneration in the severed spinal cord of adult cats and dogs by administering drugs which act partly to inhibit the formation of glial barriers and thus permit the regenerating neurons to traverse the site of the damage (NINDB L-3). An effort is being made to extend this work to the point of bringing about functional restitution but no striking success has as yet been achieved. A number of related aspects of the problem are being investigated (NINDB L-3, 4, 5, 6, 7, 12, 22). The significance of this research can best be illustrated by pointing out that there are about 100,000 paraplegic individuals in the United States who have required or still do require a great deal of hospitalization. It is estimated by the Liberty Mutual Insurance Company of Boston that the cost of indemnity and continuous hospitalization of a single paraplegic patient would amount to $400,000. Should it ever become possible to induce functional neuronal regeneration in patients of this type, incalculabl savings in human resources and money may be effected.

These studies on the anatomical and genetic aspects of the development of the nervous system are paralleled by studies in the Laboratory of Psycholo on the factors responsible for the development of personality and other psychological aspects of the problem. These are included in the report of Clinical Investigations, NIMH.

Aging of the Nervous System and of the Mind. The Section on Aging, under Dr. James Birren, in the Basic Research Program is continuing to investigate many of the aspects of this problem from the anatomical, biochemical, and psychological points of view. With the help of the animal production facilities

of NIH, he has raised a colony of aged rats corresponding in many aspects of their behavior to human beings at the end of the normal life span. In the past year he has begun quantitative measurement of certain aspects of the behavior of these animals and has shown a marked slowing in the reaction time (NIMH-28). These changes can be compared with similar changes which this investigator has found in aging human beings (NIMH-29).

In a recent publication, Dr. Seymour Kety of the Section on Cerebral Metabolism, Laboratory of Neurochemistry, pointed out on the basis of his own work and that of others that there was a progressive fall in the blood flow and the metabolism of the human brain with advancing age (NIMH-16). This section and the Section on Aging are now collaborating with Dr. Perlin of the program in Clinical Investigations on a long-term study which will correlate in the same individual measurements of cerebral blood flow, cerebral metabolism, and certain psychological attributes such as perceptual abilities and personality structure (NIMH-30). These observations on the brain as a whole are being paralleled by Dr. Streicher, who is investigating certain biochemical functions in brain tissue in vitro as a function of age (NIMH-32 and 33). In the field of the structural changes associated with aging, Dr. Birren is undertaking a careful quantitative study of the histological changes in the nervous system as a function of age, by careful counts of cellular population, blood vessels, and measurement of extracellular space (NIMH-31). Surprisingly enough, quantitative data upon this subject are woefully lacking. A study on the hemodynamic factors concerned with the formation of cerebral hemorrhage, one of the most common causes of death among the elderly, is being pursued by Dr. Cammermeyer of the Laboratory of Neuroanatomical Sciences (NINDB L-20).

PERCEPTION AND BEHAVIOR

Research into the basic mechanisms involved in perception, learning, and behavior are encompassed in the program of the Laboratory of Psychology recently set up in both the Basic Research Program and in the program of Clinical Investigations of NIMH under Dr. David Shakow, a distinguished psychologist. The function of psychology in these areas and, for that matter, in the whole field of mental health is in one sense central. This is not meant in the sense of being more fundamental or basic, but rather in the sense of being at that level of organization where it can serve as a crossroad for many disciplines or a bridge between two. Because of its special history -- its concern with both measurement on the one hand and with gross behavior on the other -- it can serve as a bridge between disciplines such as biology and sociology or between physiology and psychiatry.

Studies of the Section on Perception and Learning -- the effects of LSD on visual functions (NIMH-38-C) and the recording of eye movements (NIMH-40) -- have been discussed under the Special Senses. Dr. Blough, recently appointed to this laboratory, has developed a technique capable of yielding continuous threshold measures for visual discrimination in an unrestrained animal. This technique will be further developed and applied to studies of vision in pigeons in an effort to identify basic mechanisms of

discrimination learning (NIMH-42). A similar study of discrimination learning in normal man is being undertaken (NIMH-41).

Two important psychological theories of normal perception have been promulgated in recent years -- that of Köhler and that of Hebb. In many respects, these two theories are alternative rather than complimentary and Dr. Carlson has designed a study which should provide an important source of evidence for deciding between the two (NIMH-39). In order to understand fully the distortions in perception which are found in mentally deranged patients, it is necessary to have a sound theory of the normal processes of perception.

In the past year a Section on Animal Behavior has been organized under Dr. Enger Rosvold, who is preparing a colony of primates for future studies. Continuing the work which he successfully carried on at Yale, this section will investigate the relationship between brain function and behavior by means of neurosurgical, neurophysiological, endocrinological, and psychological techniques (NIMH-37). During the past year, he has shown that calculated changes in brain cause changes in behavior which can be reliably measured. Specifically, it has been possible to demonstrate differential effects of various lesions on intelligence, emotional behavior, and group behavior. The section has also been developing a continuous performance test and improving its design in the hope that it will reliably discriminate subjects with brain damage from normal subjects (NIMH-36). Preliminary findings indicate that the test can be successful under certain conditions. Since there is not now available any easily administered objective test which will demonstrate the effect of brain damage on serial function, such a development appears promising.

For a considerable time more, the discipline of psychology will have to wage a constant struggle with the problems of pinning data down to say nothing of the problem of pinning the questions down. This will be reflected in the work of the Laboratory of Psychology. Within its wide range of studies, it will be seen that much time is devoted to methodological problems as well as to substantive ones. Other research of this laboratory is reviewed under the report of Clinical Investigations, NIMH.

HUMAN RELATIONS

Basic research in the complex and difficult field of human relations is under the able leadership of Dr. John Clausen, Chief of the Laboratory of Socio-environmental Studies. During 1954, this laboratory was brought substantially to full personnel strength and the scope of research undertaken was broadened, with the initiation of several small-scale projects on problems of methodology and on social interaction within treatment settings.

A major project of the laboratory is a study of the impact of mental illness upon the family of the patient (NIMH-49, 50, 51, and 52). This study which has largely concentrated upon the wife's attitudes and behavior is in the stage where data are still being collected and the results are

primarily descriptive and preliminary. However, the effects of the illness upon the wife's orientation and communication with other persons has been analyzed and correlated with the wife's educational status, acceptance of the diagnosis, and the amount of affection expressed by the wife for her husband. There is evidence that attempts at concealment added appreciably to the psychological stress experienced by the wife. This study has special relevance to problems of society's recognition and treatment of pre-hospitalized mentally ill individuals, to questions of hospital procedures in providing the kinds of help that patients' families need, and for an understanding of problems of rehabilitation of the discharged mental patient. Drs. Yarrow and Jordan of this laboratory have initiated a much needed study on the validity of retrospective data on parent-child relationships (NIMH-53). This is a carefully controlled and critical analysis of the validity of such data upon which much investigation in psychiatry has depended.

Drs. Clausen and Kohn have in the past year completed two phases of their long-term study of social, demographic, and health factors relating to mental illness in Hagerstown (NIMH-55). The source of the data consisted of interviews with all available persons hospitalized for schizophrenia from Hagerstown during a twelve-year period and similar interviews with a carefully selected control group. This important matching procedure was made possible by earlier Public Health Service studies and their records in Hagerstown. Two important findings have emerged -- one, that social isolation does not seem to be a predisposing factor in schizophrenia, but appears to be the result of prior difficulties in interpersonal relationships, a consequence rather than a cause of developing illness. Secondly, these studies confirmed and amplified previous and less rigidly controlled findings reporting that the mother of the schizophrenic patient has typically played a very strong authority role and his father a very weak one toward the child.

Three small-scale studies of social interaction within the wards of the Clinical Center were undertaken within the latter half of the year (NIMH-58-C, 59-C, and 60-C). Dr. Goffman has been investigating norms regulating social interaction among patients and personnel through direct participation with patients on a ward. Dr. Deasy has been studying the way in which nurses treat their patients as related to the "reputation" of the patient among the nursing staff, and Mrs. Schwartz has investigated the changing perception which nurses have of patients and of their duties when the traditional role of the nurse is redefined by the ward administrator. Dr. Youmans is engaging in a study (NIMH-61) which seeks to relate the career patterns of selected administrative personnel to social origins, levels of aspiration, attitudes toward supervisory practices, and authoritarianism, and an index of psychological stress. A study of social psychological factors in juvenile delinquency (NIMH-57) and of the social factors which produce vulnerability to psychological stress (NIMH-56) are about to be initiated.

The laboratory took advantage of the availability of vaccination against poliomyelitis in a local community to study the social and psychological factors relating to the acceptance of a public health program (NIMH-62). Interesting and significant correlations were found between the

attitudes toward such public health programs, ability to assess their objectives, inclination to seek professional guidance, and the socio-economic and educational scales of the families. Knowledge of such relationships, especially when placed upon a statistically significant basis rather than upon the hunches which often prevail, are of value in designing public health programs of various sorts for the general population.

TECHNICAL DEVELOPMENT

Throughout this program, as in the history of science generally, it is apparent that many important advances in understanding come about only with the development of the proper tools and methods of research. To assist the scientists in perfecting their techniques and to collaborate with them in the elaboration of new ones, the Section on Technical Development was established. Its Chief, Michael Davis, combines the skills and training of an electronics engineer and a neurophysiologist. Besides the routine duties of repair and maintenance (NIMH-65), the section has designed, developed, and constructed a wide variety of instruments, not previously available, for the specialized purposes of the research program (NIMH-67). These have included techniques for communication and recording useful to the clinical programs in psychiatry and neurosurgery, apparatus for psychological studies, and the complex electronic instruments important to research in neurophysiology and biophysics. The section has developed instruments for the delicate task of guiding microelectrodes through the nervous system and into individual cells with a precision expressed in thousandths of a millimeter. An analogue computer capable of solving complicated equations such as those involved in measurement of local blood flow in seconds instead of hours is under construction.

This list by no means exhausts the contributions of this section or of the program as a whole to the creation of new tools for research. In every laboratory new techniques are being developed, improved and modified and then applied to yield new information and create better understanding of the basic processes responsible for mental and neurological function.

RESEARCH GRANTS AND FELLOWSHIPS BRANCH
Calendar Year 1954

The substance of the extramural research grants program of the National Institute of Mental Health from 1947 to 1952 was reviewed and analyzed in some detail in the 1952-53 Annual Reports. Research supported during those years covered a wide range of topics, including studies on the etiology, diagnosis, prognosis, and treatment of mental disorders; studies of the social pressures influencing human behavior; animal investigations of both biologic and social techniques for modifying behavior; studies of child development and delinquency; and a broad range of basic research studies fundamental to further progress in mental health and illness.

It is of more than passing interest, however, to look occasionally at the changes in size of this research program in recent years.

The number of applications for research grants and the number of grants made each year from 1947 to 1954 are shown in Figure 1. The steadily mounting research interest in mental health and illness is effectively demonstrated by the 75% increase in applications from 136 in 1951 to 238 in 1954. As a consequence, the work load of the Research Grants and Fellowships Branch has increased considerably, without any increase in professional staff, which has, in fact, decreased in number from three to two.

Trends in Research

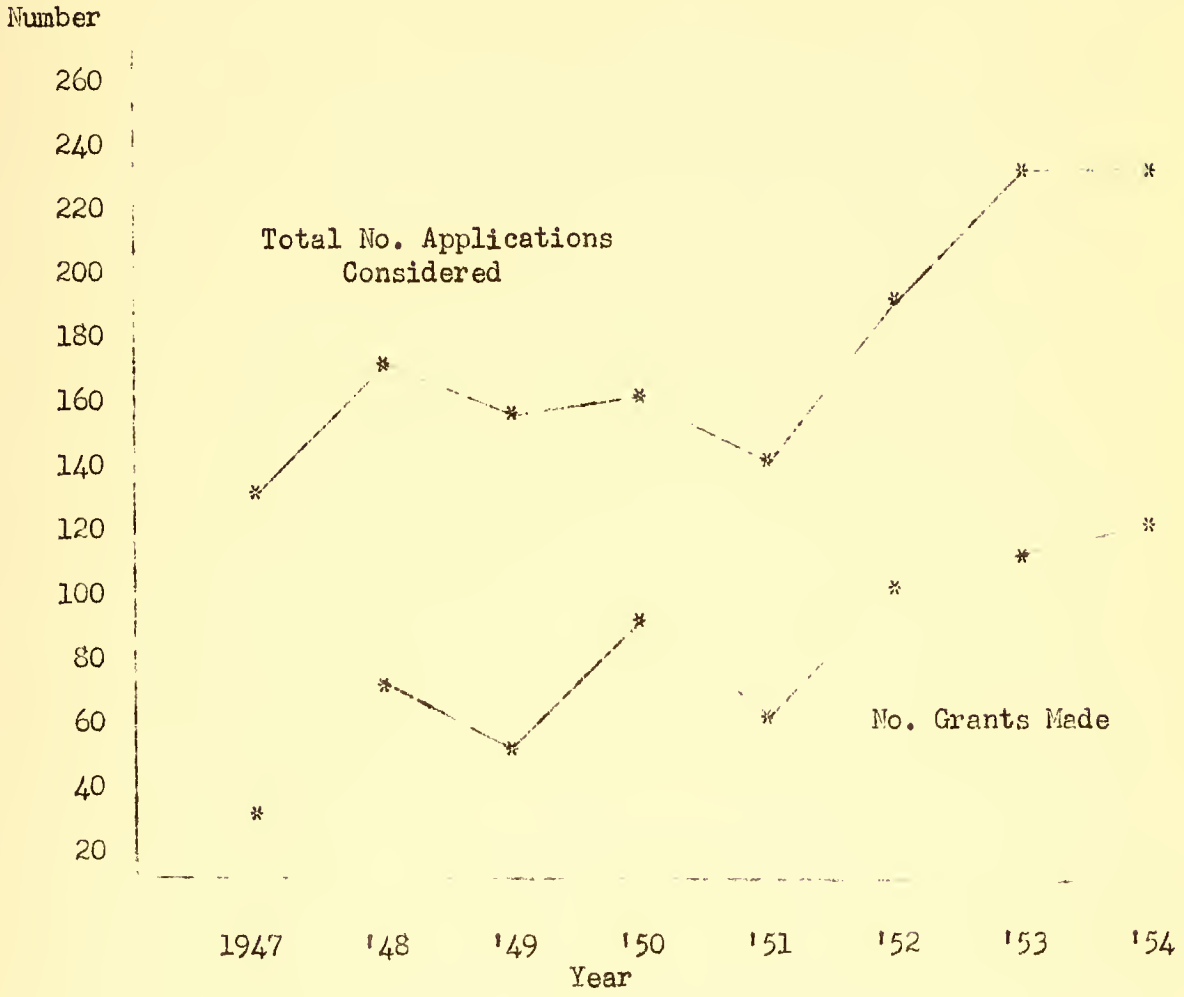
Research developments continue to bring new techniques to the service of mental health research and to make necessary new types of cooperation between fields of science. Research in the field of mental health is now being carried on which utilizes microbiochemical methods, radioactive tracers, the electron microscope, sociologic surveys, and a multitude of other specialized techniques now available for application.

Since research ideas and techniques evolve but slowly, one expects relatively little change in any one year in the proportions of research applications on various subjects submitted for consideration. Major trends become more apparent, however, if the total grants approved for support in a given year are compared with several previous years.

Shifts in research emphasis over a period of years result primarily from (1) new social pressures and interests, and (2) the availability of new research techniques and concepts. Exemplifying the former has been a progressively greater research emphasis on the early formative years of life. Recognition of the early origins of certain types of mental illness has yielded a higher proportion of applications for work in child development and the early prevention of mental illness through experimental school room programs, parent education, etc.

Exemplifying the latter has been the pronounced increase in the number of research applications applying biological techniques in the study of mental illness.

Figure 1



Total number of applications considered and number of research grants awarded by the National Institute of Mental Health, 1947 to 1954.

Problems in Biological Research

As a result of the concern expressed by the National Advisory Mental Health Council and the Mental Health Study Section over the failure of past research efforts to produce more definitive results in relating the biological sciences to the field of mental health, a committee was established to determine the reasons for this failure and to search for means to stimulate better research in this area. A review of previous applications indicated that a major factor in the failure of past efforts has been the lack of sufficiently refined biological techniques which can be applied to such conditions as schizophrenia. In such disorders the variation from normal function apparently arises from rather subtle causes. In some areas this deficiency has been recognized; in others, however, there has been evident a lack of understanding of the techniques and problems involved in one field by representatives of the other field. It would appear that the more sophisticated workers have recognized the limitations in both fields and have not attempted to span the gap at the level of human mental disease except in areas where adequate techniques could be made available. It was brought out that in some areas indefinite results have been due to failure to realize the complexity of the central nervous system. The Committee also found that the most productive studies to date have been carried out on animal subjects, in which the imposed psychological and biological variables can be more adequately controlled. A continuing concern of the Committee has been the biophobic and psychophobic attitudes of representatives of the behavioral and biological disciplines, respectively, and the problems of communication that exist between one field and another.

As a result of these discussions, it was decided that, as a first step, a joint conference should be held on the problems of interdisciplinary research in the behavioral, biological, and biochemical sciences at the animal level. As a result, a grant for such a conference was awarded and plans are now underway for it to be held in the fall of 1955. In the meantime, the Committee plans to hold further meetings and to issue, as part of its activities, a detailed report of the problems of research in this field, as well as of fruitful areas now worth pursuing.

Increase in Biologic Research

Meanwhile, it is of considerable interest to note that of the first 150 applications for mental health research support received by the Institute since 1947, only 5 (or 12½%) of the 40 approved could be considered basically biologic researches, while of the 194 new applications during 1954 about 23% of the 70 approved applications employed primarily biologic techniques. An examination of the projects approved in 1954 indicates that the projects approved during this last year are by and large employing techniques unknown a few years ago. Microbiochemical assays of nerve cells, in vivo recording of blood oxygen, electronic analysis of brain wave patterns, and neurosurgical techniques capable of producing discrete lesions in deep centers of the brain with negligible cortical destruction--these and other research innovations appear largely responsible for the increase in biologic studies of the nervous system.

Diversity of research topics has accompanied the increased application of biologic methods. The physiological bases of psychosomatic disorders, the biochemical processes accompanying aging, drug addiction, schizophrenia, and mental deficiency, detailed EEG studies of temporal lobe epilepsy and of the normal brain, and experimental studies of the effects of endocrine products on mental health and illness have all been projects supported during 1954.

Progress on several biologic studies is particularly interesting.

For example, the convulsion-producing mechanisms of certain drugs, such as metrazol, and of electroshock is very inadequately understood despite the usefulness of shock therapy for certain mental disorders. In order to increase our understanding of the biochemical agents capable of producing convulsions, Dr. Carl Pfeiffer of Emory University has undertaken a systematic study of a large number of substances, especially the hydrazides. Experiments on mice, cats and monkeys have been conducted to determine the seizure-potency of these substances. Those which appear most promising are further analyzed for their effects on humans and to ascertain how their effects are moderated by the anticonvulsant drugs now in use. In this long-range work, supported in part by grants from the National Institute of Mental Health, Dr. Pfeiffer is analyzing what specific biochemical reactions are involved in both the pathologic seizures of epilepsy and in therapeutically induced seizures used in the treatment of certain mental disorders, such as depression and schizophrenia.

With the increased number of aged persons raising new economic and health problems for the nation, research on the social, psychological and biologic factors in growing old is greatly needed. Dr. Ewald Busse and his associates at Duke University aided by a grant from the National Institute of Mental Health, are studying the EEG's and intellectual capacities of 140 persons over age 60, compared with a younger population. It appears that persons over 60 have a much higher prevalence of abnormalities in their EEG's than younger persons and that the abnormal brain waves are most frequently centered in the temporal lobes. Suprisingly enough, however, while diffuse temporal abnormalities in the EEG are associated with diminished ability to learn and lowered performance on I.Q. tests, focal temporal patterns in the EEG are associated with sustained intellectual capacity.

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These findings suggest that the temporal lobes, notoriously subject to vascular lesions, may be particularly affected in senility, and that the intellectual deterioration associated with aging is a function of widespread, rather than localized, deterioration of the brain. Other researches now going on are aimed at determining the kind of biochemical and structural changes which occur in the brain with aging.

Child Studies

The numerous child studies are surprisingly diversified, including studies of the prenatal environment, the development of schizophrenia in children, the origin of mental deficiency, psychosomatic disorders in children, the effectiveness of child guidance clinics, the effect of parental maturity on child development, and investigations of the emotional reactions of children suffering from chronic physical illnesses.

One of the earliest studies supported by the Institute has just been completed and its results will shortly be published under the title "Midwest and Its Children, a Study in Psychological Ecology."

"Midwest" is a pseudonym for a real town in the midwestern part of the country which was selected for the study. Midwest is unusual in that it is a quite self-sufficient community, not relying on nearby cities for livelihood, services, or recreation. As a result there is active civic participation, with a relatively large proportion of the population cooperating actively in community affairs.

This setting provided an excellent site for the study of how children develop, behave, and learn to take their places in community life. Because mental illnesses and personality and behavior disorders are characterized by difficulties in interpersonal relationships, basic knowledge of the stages of development of behavior is essential to our understanding of the causes and effects of these disorders. The report of the Midwest study promises to be of considerable value in developing more effective ways of building sound mental health in the community.

From the work of another investigator, it now appears that the behavior and personality of children is influenced appreciably by the ages and sexes of their siblings (brothers and sisters). Teacher ratings and test data were gathered on 128 five and six-year olds. The children were divided into eight sub-groups of 16 each; males with older brothers, males with younger brothers, males with older sisters, etc.

Statistical analyses of the rating data indicate that first-born children are judged as showing significantly more anger being more intense emotionally and more upset by defeat than second-born children. Boys with younger siblings were judged generally healthier than those with older siblings. Children from opposite-sex sibling pairs, as compared with those whose siblings were of the same sex, were judged more self-confident, faster to recover from emotional upset, healthier, more curious and more friendly.

The utility of such knowledge is two-fold. First, it provides new insight into normal child development, permitting us to anticipate and perhaps prevent instances of mental disorder which have been aggravated by unfortunate relations with brothers and sisters. Secondly, it suggests specific directions for therapy with children whose family relations are disturbed.

In addition, the factors which influence normal social adjustment have come in for their share of study during the past year. Scientists, aided by the Research Grants program, are examining how perception and motivation are affected by the immediate environment, the effects on mental health of cult groups, and techniques for helping socially isolated children to adapt more readily to their peers.

Studies of Therapy

The past decade has seen a large number of studies which attempt to evaluate the effectiveness of various therapies on mental illness. Valuable investigations have been undertaken, many with aid from the National Institute of Mental Health, to determine how patients discharged from mental hospitals adjust to their families, jobs and other responsibilities, which types of patients seem to respond best to the various therapies now available, and so on. A new light on this field is promised, however, by recent researches aided by the Institute, aimed at exploring the role of the mental health worker himself in the recovery of mental patients. Two scientists, working independently, are now studying the effect of the mental hospital community on patient prognosis. In other projects, the effect of the psychiatrist's specific background and training on the type of therapy he practices is under study. At another hospital, an evaluation has been undertaken of a mental health program for nurses. These latter projects illustrate the progressive broadening in our concept of what is necessary for effective therapy. First, there was concentration on the patient alone, classifying his disorder and observing his responses to particular therapies. Subsequent research has suggested the wisdom of examining the therapeutic process itself, how the process proceeds and how and when improvement occurs. The third element is now coming under study: namely, the mental health worker himself and how his personality, training, and work determine his effectiveness.

One of the earliest and most important of these studies was carried out by Dr. Alfred Stanton and Dr. Morris Schwartz through a long-term grant from this Institute to the Washington School of Psychiatry. A detailed report of these studies has now appeared under the title "The Mental Hospital, a Study of Institutional Participation in Psychiatric Illness and Treatment." (Basic Books, 1954).

The objective of the study was to analyze exactly what type of influence the hospital community has on a patient and his illness. The project staff examined such questions as how hospital staffs communicate and interact, how the staff members relate to patients during both "therapeutic" and "off" hours, and how patients get along with each other when living under the strained conditions of a hospital environment. It is not surprising to find that virtually every

patient is affected by and sensitive to the type of leadership and the harmony or disharmony of the institutional staff. This study may well set a pattern for critical self-examination by the administration and staff of other mental hospitals throughout the country.

Relationship between Intramural and Extramural Research

One of the most prominent developments in the Institute during 1954 was, of course, the expansion of the intramural program of mental health research in the new Clinical Center. While this program is essentially independent of the research grants and fellowships program, this independence has not become synonymous with isolation. One of the several objectives of the intramural laboratory is to analyze the process of psychotherapy and its effect on both patient and therapist. At the same time, a parallel study is being supported at a midwestern university. The two studies have broadly similar objectives and planning is proceeding so that each study might facilitate the other. In certain important fields, such as this type of study of the therapeutic process, replicative studies which provide checks on each other's results are greatly needed.

Follow-up Studies

In view of the need for well designed studies to determine what happens to mental patients following discharge from a mental hospital, and because of a concern with the poor quality of applications which have been received in this field to date, the Mental Health Study Section this year appointed an ad hoc committee on follow-up studies to determine the nature and extent of the problems involved in such studies and to make suggestions as to ways in which good research in this area might be stimulated. The committee has met several times and is now in the process of preparing a report on this topic. One of the problems with which it has concerned itself is the lack of recognition on the part of many investigators that there are several different types of follow-up studies which are possible, and that each type of study requires different approaches depending upon the questions to which answers are sought. If it appears appropriate, the report of the committee will be published in one of the relevant professional journals.

Research in State Mental Hospitals

The Institute has concerned itself with the problem of supporting research in State mental hospitals. Applications from the State hospitals are frequently disapproved because they are poorly designed, because adequate personnel is not available, or for other reasons. However, a wealth of research material is available at these institutions. Consideration is being given to sponsoring a conference on the problems of planning and developing research programs, both within State mental hospitals and as a part of the program of a State mental health department. Consideration is also being given to initiating a type of program support of State hospital research, by encouraging collaborative research between a State hospital and a nearby university or medical school, including the interchange of research personnel. Such grants would provide long-term support, would be limited in number, and would be given to carefully selected hospitals where the potentiality of fruitful collaboration with a university or medical school existed. This type of proposal is especially timely considering recent developments of the Southern Regional Education Board.

Research and Training in the Southern States

Members of the Branch participated in the Southern Regional Conference on Mental Health Training and Research sponsored by the Southern Regional Education Board at the request of the Southern Governors' Conference and supported in part by a grant from the National Institute of Mental Health. This Conference recommended the establishment of a Southern Regional Council on Mental Health Training and Research with the participation of each State in the Southern Conference, a contribution by each State of $8,000 a year and provision for inter-State arrangements in the fields of research and training. These and other recommendations have since been endorsed by the Southern Governors' Conference. The establishment of such a Council will represent the first such inter-State program in the field of mental health and will have important implications for the development of research in the Southern United States. Already States in other regions of the United States are considering the development of similar arrangements for their areas.

Programs for Increasing Qualified Research Personnel

Recognizing the increasing lack of well trained workers in the basic medical science disciplines, the National Advisory Mental Health Council gave its endorsement to the proposed program of support for preclinical science investigators. In giving its support, the Council stressed the need to include support of investigators in the behavioral sciences, including the subjects of personality structure and development and psychopathology.

Reference was made in the annual report for 1953 to the initiation of a special type of research grant, known as a mental health career investigator grant. This type of grant, developed at the recommendation of the National Advisory Mental Health Council, is intended to assist in opening research careers to qualified young psychiatrists and scientists in related disciplines who have demonstrated high promise and who wish to pursue careers of research on problems related to mental health and illness. For this purpose a basic stipend of $6,000 to $10,000 a year, with additional funds for the costs of the research, is provided to a limited number of such individuals for a period of 3 to 5 years.

The response to this new program has been encouraging and in 1954 three such 5-year grants were awarded. Applications are now being received for consideration in 1955. To aid in the selection of these candidates, a special Selection Committee composed of five outstanding scientists has been appointed.

The research fellowship program of the Institute has continued as in the past. Reestablishment of the predoctorate fellowship program has met with a favorable response and more applications continue to be approved than can be paid. It has become apparent that the fellowship program of the Public Health Service is not as widely known as it should be to attract the highest type of candidate, and that continuing efforts must be made to bring it to the attention of students in universities, colleges, and other educational centers. Increased efforts have been made in this regard, with a resultant increase in the number and quality of applications submitted.

BIOMETRICS BRANCH
Calendar Year 1954

Continuing progress is being made in all phases of the Biometrics program which consists of the following activities: (a) Collection, processing and analysis of data on the extent of the problem of mental disorders particularly with regard to patients under treatment in mental hospitals, in out-patient psychiatric clinics, and in general hospitals with psychiatric services; (b) providing consultative services to State mental health and hospital authorities on the organization of statistical research bureaus and the design of follow-up evaluative and other special studies; and (c) providing consultative services on design of experiments, analysis of experimental data, development of mathematical models to other Branches of the Institute, particularly to personnel in the laboratories of the Research Branch engaged in basic and clinical research.

Hospital Statistics:

An additional 4 States have joined the original group of 11 States forming the Model Reporting Area. The objective of the 15 States in this Area is to improve the basic statistical data available on the mental hospital population of the Nation by standardizing statistical tabulations on mental hospital populations based on uniform definitions. Additional States are in the process of joining in this endeavor.

As a result of the stimulation provided by the Biometrics Branch, studies are being established in several Model Reporting Area States to determine what happens to first admissions by age, sex, diagnosis and other variables during specified periods following admission to State mental hospitals. These studies will extend knowledge of the epidemiology of mental disorders and will provide data for States to evaluate their mental hospital systems and pinpoint important areas for essential research.

The study of disposition of first admissions to Warren State Hospital during the period 1916-50 has been continued. A preliminary report of this study was presented at the annual meeting of the American Public Health Association in Buffalo, New York during October 1954. This study has yielded very significant results as well as pinpointing significant areas for research. For example, there are now available for this hospital a series of probabilities of being released alive and of dying in the hospital for first admissions to this hospital during the period 1946-50 specific for age at the time of admission, sex, diagnosis and length of hospitalization. These probabilities demonstrate quite clearly, for example, that the chances of release in the first year following admission for first admission patients with functional psychosis in the period 1946-50 (60 out of 100) were 50 percent in excess of what they were for patients admitted in the period 1916-36 (40 out of 100) and 25 percent higher than for patients admitted in the years 1936-45 (48 out of 100). The question still remains as to what is responsible for this difference. In particular one must ask how much of this difference, if any, is actually due to the effectiveness of the modern psychiatric therapies used in the current period and how much is due to other factors such as differences in the kind of risk being admitted to the hospital, differences in attitude of the staff toward

expected condition of patients at time of release, availability of staff and community and familial factors. That is, the outcome of hospitalization is dependent on the interaction of a large number of complex variables. Therefore, what is needed before one can make statements about the effect of specific therapies or therapeutic programs on the release rates of mental hospital patients are carefully controlled experimental studies to evaluate the various therapies singly and in combination with each other and with various ancillary programs. Another finding was that patients who have reached the second and third years of hospital life currently have approximately the same chances of being released within the 12 months following the period of hospitalization they have attained as had similar groups of patients admitted in earlier periods of time. Findings such as this raise a whole host of other research questions about etiological and other factors responsible for long-term hospitalization, the kinds of treatment methods that can make it possible to return more long-term patients to the community and necessary programs for improving the lot of the patient who cannot be returned to society.

Two additional studies of the Branch deserve mention. One, a survey of the services and therapies available to mental patients in general hospitals throughout the country in 1951 has secured data that have to date not been available. The analysis of these data is nearing completion and the results will shortly be published. The other is a study of age-specific and age-adjusted first admission rates to State mental hospitals and to public institutions for mental defectives by State, sex and diagnosis for the years 1940 and 1950.

The attached projects, designated respectively by numbers from (74) through (82), detail the specific activities mentioned above.

Outpatient Statistics:

After several years of preliminary work a nationwide uniform reporting system for outpatient psychiatric clinics has been developed. This form was developed after considerable consultation with State Mental Health Authorities, staff members of a large number of psychiatric clinics throughout the Nation, professional organizations and other Federal Agencies and trial experience in 24 States. In April 1954 a conference of 60 representatives from 28 States was called in Bethesda to review the results of this preliminary work. This conference approved the content of the report form, definitions and instructions governing its use with only minor modifications. It is estimated that by the end of 1955 all but 1 or 2 of the States will be participating in this program. The data to be secured will provide uniform basic information for State, local, and voluntary groups on the operation of this essential community mental health facility as well as being a source of basic research data on such programs.

Another important result of the above-mentioned conference was the organization of a number of multidiscipline committees designated to work on various phases of the problems of uniform reporting. Committees were designated to broaden the area of uniform definitions, to consider problems of reporting diagnostic classification and to develop techniques for pilot studies on such problems as cost of clinic services and patient follow-up. Further conferences on mental health clinic statistics will provide the framework for carrying out such studies on a cooperative basis among interested States.

It is noteworthy to report that a recommendation of the Governors' Conference on Mental Health held in Detroit in February 1954 has underscored the importance of the work the Biometrics Branch is carrying out on hospital and clinic statistics. Point 8 of the Ten Point Program on Mental Health adopted by this Conference reads as follows:

> "One of the important obstacles to adequate evaluation of procedures and therapies is a lack of uniformity in statistical methods in mental hospitals and clinics throughout the country. All States should cooperate with the United States Public Health Service and the American Psychiatric Association in the adoption of uniform terminology for statistical reporting procedures in the field of mental health."

Experimental Statistics:

Starting in October 1954, when the Chief of the Experimental Statistics Section came on duty, a variety of statistical services have been provided to the basic and clinical research workers of the National Institute of Mental Health. These services consist of advice on the design of experiments and in the analysis of experimental data utilizing the most efficient and powerful statistical methods available. In the short time this service has been available, consultation has been given on a wide variety of projects. Some examples follow:

1. Construction of a psychological personality test for use in distinguishing mothers of normal children from mothers of psychologically abnormal children.

2. Mathematical description of light thresholds in a dark room.

3. Differences between normal individuals and those with organic brain lesions--use of analysis of covariance.

4. Identification of, and associated factors for, children mentally disturbed by the striking of a tornado.

5. The use of lysergic acid in treating schizophrenia.

6. Investigations into serum protein fractions in the normal guinea pig and the guinea pig injected with certain extracts.

7. Investigation of the probability distribution of the home range of animals.

8. Experiments on neural sections: normal, unoperated cats and operated cats.

9. Investigation into patient--therapists interactions in the psychotherapeutic process.

In summary, the program of the Biometrics Branch has progressed well during the past year. Despite the fact that all positions have been filled, the number of personnel, professional and clerical, are still too few to allow this Branch to make its maximum contribution. I would anticipate that demands for consultative services will be continually increasing. If the experience of the past 3 months is any indication of future trends, the demands for consultation on the design of experiments and the analysis of experimental data from scientists in the intramural research program will require the services of additional mathematical statisticians. The demands for factual and evaluative data on mental hospital and clinic populations will surely increase as an inevitable consequence of the impending expansion of public mental health programs in several States and of programs resulting from the regional governors' conferences on mental health. This will require that this Branch provide considerable consultative services to State mental hospital and mental health authorities in the development and organization of their statistical services.

In addition, there are several basic research problems that this Branch should undertake. For example, studies of readmission rates to mental hospitals, follow-up studies of patients who have received services in outpatient psychiatric services, and pilot studies designed to determine effective methods for measuring the prevalence and incidence of mental illness in given communities. In addition, it is highly desirable to replicate the Warren study in several other hospitals throughout the country and perhaps to initiate a series of studies of this type on an international level.

CLINICAL INVESTIGATIONS
Calendar Year 1954

In this, the first full year of operations of Clinical Investigations at the National Institute of Mental Health, gradual progress has been made toward the three goals of the research program: first, the study of important types of mental illness with a view toward discovering more effective methods of treatment and prevention; second, the examination of data derived from these studies, together with further work in the areas of developmental psychology, communication, and social interaction with an immediate view toward the discovery of those experiences which are essential for normal personality development and the ultimate aim of establishing a theory of personality based on objective, replicable data; and third, the investigation of the anatomical structures and physiological events associated with psychological activity; such determinations will also show how certain mental symptoms may be related to organic pathologic process.

Studies of Treatment Techniques

The emotional illnesses most intensively studied up to the present time are aggressive, acting-out disorders in pre-adolescent children and a number of patients with schizophrenia, some in whom the onset of the illness had been relatively recent and acute, others who had been hospitalized for many years and in whom the disease process was regarded as being relatively fixed and stable. The studies described in the 1953 report are, for the most part, still in progress. In general, for both children and schizophrenic adults, the studies have tended more and more toward an integrated, group approach with emphasis upon an attempt to produce substantial personality growth; this is an ambitious goal, and necessarily, a long-term one.

In the Laboratory of Child Research, both the clinical care and research activities are organized around three separate therapeutic approaches; individual psychotherapy, milieu therapy, and helping the child in school. To our knowledge, there is no other treatment service which provides for all patients an integrated program of intensive psychotherapy concurrently with intensive milieu therapy and an intensive remedial education program. Thus, the organization of the unit affords a rare opportunity to study the roles of the child care worker, the psychotherapist and the teacher; and to devise methods to enhance the integration of these three distinctly different methods of approach.

In the Laboratory of Adult Psychiatry, attention has been turned to the growing body of knowledge which points to the early relationship between infant and parents--particularly the mother--as playing an important role in bringing about the circumstances which may lead to the later development of schizophrenia. One group has been working with the mothers and fathers of their patients as well as with the patients themselves. A project more recently started is directed at the same problem, but in a somewhat different way. Here the emphasis is on the mother-patient relationship, with an attempt being made to encourage the mothers to remain as close as possible to the hospitalized patients--even to the point of living on the ward. This project has already provided unusual opportunities to observe unexpected activity in this highly important relationship; and it is hoped that this activity may be utilized for significant therapeutic effect.

In other studies, the techniques of linguistics and the role theory of sociology are being applied to the analysis of therapeutic interviews with exceedingly gratifying results; it appears that it will be possible to make progress toward objectifying and quantifying interview material which has hitherto been evaluated on a largely subjective basis. Work in this area is exceedingly important since psychotherapy is still the most commonly used and probably the most generally effective method of influencing various forms of mental disease.

Psychosomatic Investigations

The Laboratory of Psychosomatic Investigations is involved in studying the inter-relationship between psychological and physiological phenomena. The research program is presently concerned with this approach in such diseases as diabetes mellitus, peptic ulcer, anorexia nervosa, bronchial asthma, and hypertension. Psychologic data are being gathered through psychiatric interviews and psychologic testing. Physiologic data as expressed through alteration in metabolic, endocrine, nervous, electrolyte, hemodynamic and gastrointestinal functions are being obtained. The dynamic interplay of psychologic and physiologic factors is being studied in both humans and animals. The use of animals permits a degree of control and manipulation of psychologic and physiologic variables not obtainable in human studies. It is anticipated that in man and animals expressions for qualitative relationships between these variables at both a biologic and psychodynamic level can be obtained. Certain of the animal studies will provide quantification of psychologic and physiologic inter-relationships.

LSD as a Research Tool

A major development of the research program of the Laboratory of Biochemistry and Physiology has centered around the role of lysergic acid diethylamide (LSD) as a tool for investigation of neuropsychiatric phenomena. This drug has been studied by various clinical and basic research sections within the Institute, and also in collaboration with scientists of the National Heart Institute. These studies are among the first to reflect the rapid progress that can be made by bringing to bear the various special skills which are available at the Clinical Center. Notable areas of progress are: (1) the discovery of electrical changes in the lateral geniculate body of the cat following the administration of the drug; (2) the finding of a marked anti-dieuretic action much greater than that caused by most other agents which possess this property; and (3) the discovery by the National Heart Institute of an apparent antagonism between chlorpromazine and lysergic acid diethylamide. Another study in this laboratory is concerned with the biochemistry of myelin, and the changes which accompany its breakdown. It is felt that the findings from this work will be of significance not only in the degenerative diseases but also in the whole problem of aging which has come to be of increasing importance in recent years.

Laboratory of Psychology

The growth of the Laboratory of Psychology has been particularly gratifying since the level of organization of that discipline is such that it serves as a crossroad for the various behavioral sciences. Of particular interest in the investigations already under way are those in child development which propose to define those factors in early infancy and childhood which are significant for either adjusted or maladjusted later behavior. A special effort is being made to develop devices which can predict the parental attitudes that favor the one or the other. Intensive study is also being devoted to the differences in psychological functioning between adjusted and maladjusted children. Two other highly important areas of study are concerned with the problems of perception and learning and the study of personality and its deviations. In the activities of this Laboratory three simultaneous approaches to the study of normal and deviant behavior are represented: at the animal level, at the adult level, and at the child level. Each is complementary to the other and has advantages and disadvantages not possessed by the others. By pursuing each approach, and by moving from the field to the laboratory and back to the field again, it is hoped that it will be possible to make our field observations more controlled and exact. For this reason much emphasis has been placed on visual and auditory recording techniques.

The project descriptions give in detail the studies which have been undertaken as steps toward the goals described in the initial paragraphs of this summary.

R.P.C. - 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Basic Research Program
LABORATORY OR BRANCH

3. ---
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. NIMH-A
SERIAL NO.

6. Studies on animal behavior and its relation to mental health
PROJECT TITLE

7. _____
PRINCIPAL INVESTIGATOR

8. _____
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

The increase in funds over fiscal year 1955 will enable full utilization of space presently being completed in Building 9 for studies on the behavior of primates. The present staff and space available for this undertaking has served as a skeleton for planning the future program, planning and designing the facilities, and in developing a useful primate colony at NIH.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-A
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL
FY 1955	--	--	--	--	--	--	--
FY 1956	120,000	4	7	11	--	--	--

12. BUDGET ACTIVITY: RESEARCH

R.P.C. - 1

December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Basic Research Program
LABORATORY OR BRANCH

3. ---
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. NIMH-B
SERIAL NO.

6. Mental and neurological studies on aging
PROJECT TITLE

7. _____
PRINCIPAL INVESTIGATOR

8. _____
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

This increase in funds over 1955 will support basic and clinical studies at NIH on the biochemical, physiological and psychological aspects of the aging process as it affects the nervous system, and will permit the establishment of a collaborative project with the Gerontology Section of the National Heart Institute on the clinical, physiological and psychological effects of aging and the social adjustment of the aged in industry.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-E
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL
FY 1955	--	--	--	--	--	--	--
FY 1956	135,000	7	12	19	--	--	--

12. BUDGET ACTIVITY: RESEARCH

R.P.C. - 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Clinical Biochemistry and Physiology
LABORATORY

3. _____
SECTION

4 _____
LOCATION

5. NIMH-1
SERIAL NO.

6. Production of Allergic Encephalomyelitis in Guinea Pigs by Injection of Homologous Brain Lipid Fractions.
PROJECT TITLE

7. Dr. Norman P Goldstein and Dr. Marian W. Kies
PRINCIPAL INVESTIGATORS

8. Dr. Elizabeth Roboz of the Georgetown University Department of Biochemistry, Dr. Elsworth Alvord of the National Institute of Neurological Diseases and Blindness, and Dr. Carlton Treadwell of the George Washington University Department of Biochemistry.
OTHER INVESTIGATORS

9. Project: The isolation and characterization of the lipid substance in brain responsible for the allergic demyelinating processes, and the investigation of changes in lipid metabolism as reflected in the blood and brain lipids during the course of the disease.

Objectives: The objective of this project is to study the demyelinating process which goes on in the nervous system in various neurologic and psychiatric disorders.

Methods Employed: Guinea pigs are injected with homologous extracts of brain which sensitizes them resulting in an allergic demyelinating disease. This is followed both neuropathologically and biochemically by determination of lipid changes in the blood and brain of experimental animals. Serum protein changes are also followed.

Major Findings: The major finding of this project during the past year has been that of the observation of increased gamma globulin in the blood of sick animals. A lipemia has been found which is being investigated quantitatively with respect to the different fractions of blood lipids.

Significance to Mental Health Research: Among the causes of organic psychoses, various demyelinating diseases of both childhood and adult life make up a significant proportion of hospitalized patients with organic mental disturbances. In order to obtain an understanding of these demyelinating diseases in humans, it is important to have a laboratory model to study the processes of demyelination. In addition, a knowledge of lipid metabolism in the brain is important in terms of general knowledge of cerebral metabolism.

Proposed Course of Project: A considerable proportion of the next calendar year will be devoted to attempts to isolate the substance in brain which is responsiole for the production of this experimental demyelinating process. Chemical characterization of the fractions will be attempted by known procedures such as phosphorus and nitrogen analyses, solubility behavior chromatographic separations, etc.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH - 1
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS PROF	OTHER	TOTAL	MAN YEARS PROF	OTHER	TOTAL	PATIENT DAYS
FY 1955	$11,050	2	3	5	2/3	1	1-2/3	
FY 1956	$11,050	2	3	5	2/3	1	1-2/3	

12. BUDGET ACTIVITY:

RESEARCH [x] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1) NINDB-36

National Institute of Neurological Diseases and Blindness, Clinical Neuropathology Section, NIH
Georgetown University Department of Biochemistry
George Washington University Department of Biochemistry

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

R.P.C. - 3
December 1954 Analysis of NIH Program Activities

Honors Awards and Publications Sheet

15. NIMH-1
SERIAL NO.

16. LIST PUBLICATIONS OTHER THAN ABSTRACTS FROM THIS PROJECT DURING CALENDAR YEAR 1954:

Norman P. Goldstein, M.D. and Marian W. Kies, Ph.D. - "Application of Chemistry of Brain Lipoproteins to Problems of Allergic Meningo-encephalomyelitis." Current Research in Neurochemistry and Allied Fields. Paul Hoeber & Company, New York, N.Y.

17. LIST HONORS AND AWARDS TO PERSONNEL RELATING TO THIS PROJECT DURING CALENDAR YEAR 1954:

R.P.C - 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Laboratory of Neuorphysiology

3. General Neurophysiology Section 4. 5. NIMH-2
SERIAL NO.

6. General physiology of the cortical matrix.

7. W. H. Marshall

8. W. H. Freygang, Jr.

9. Objectives: To study physiological functions of the subarachnoid space.

Methods employed: The cortical pool technic developed in the past several years in connection with studies on spreading depression is used in conjunction with intra-arterial injection (a branch of the carotid is used) to compare the effects of drugs and cation alterations produced by two ways: across the blood brain barrier and across the cerebral spinal fluid brain barrier.

In order to better control metabolic and circulatory variations an improved form of the oxygen electrode apparatus has been developed and an improved thermostromuhr using a thermistor is under development.

Major findings: During the past year we have improved the oxygen electrode technic and used it to indicate necessary controls involved in the tests of serotonin which is a strong broncho-constrictor. We have applied the arachnoid pool technic for cortical application of lysergic acid. This showed the same effect (some amplitude enhancement of striate cortex evoked response) as lysergic acid administered through the carotid artery. This was an important experiment to eliminate any possible action of cortex on the specific action of lysergic acid on the synapses of the lateral geniculate nucleous. Administered this way no effect on geniculate reaction was observed.

Significance to Mental Health and Neurology Research: Fundamental physiology of cortex is directly connected with problems of abnormal excitability involved in convulsive syndromes.

Proposed course of project: Continue indefinitely.

R.P.C. - 2
December 1954 Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-2
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL
FY 1955	$16,750.00	2	7	9	1/3	2-1/3	2-2/3
FY 1956	$17,300.00	2	7	9	1/3	2-1/3	2-2/3

12. BUDGET ACTIVITY:

Research

13. None

14. None

R.P.C.- 3
December 1954 Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH-2
SERIAL NO.

16. LIST PUBLICATIONS OTHER THAN ABSTRACTS FROM THIS PROJECT DURING CALENDAR YEAR 1954:

Marshall, W. H. Physiological basis of the electroencephalogram, (invited discussion). Third International Congress of Electroencephalography and Clinical Neurophysiology, Cambridge, Mass., Aug. 1953. Published September 1954.

17. LIST HONORS AND AWARDS TO PERSONNEL RELATING TO THIS PROJECT DURING CALENDAR YEAR 1954:

Findings from this project were presented at the Neurophysiology Group of the American Physiological Society Spring Meetings 1954 at Atlantic City, New Jersey.

R.P.C. - 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Laboratory of Neurophysiology

3. General Neurophysiology 4. 5. NIMH-3
SERIAL NO.

6. Recovery cycle of lateral geniculate nucleus of the cat and bilateral interaction in same.

7. W. H. Marshall

8. Edward Evarts

9. Objectives: To study excitability cycle of lateral geniculate nucleus and bilateral interaction in same. The study may be extended to cortical systems depending on developments. Particularly pertinent is accurate data on these items with anesthesia, without anesthesia (using a high brain stem section above the fifth nerve), and under influence of certain drugs like lysergic acid.

Methods employed: Optic nerves are directly stimulated after resection of the eye. Electrodes in the lateral geniculate, on cortex and in other strategic locations in the visual and associated systems record the reactions.

Major findings: Further tests on excitability cycle became pressing in connection with tests on action of lysergic acid (E. Evarts, principal investigator, Clinical Investigations; see his report). It was found that the response to a single maximal shock applied to the optic nerve could be blocked in the geniculate if the brain was subjected to 100 gamma of lysergic acid administered into the carotid artery. However, a second shock applied within a few milliseconds showed some synaptic transfer, and a third impulse might be of normal amplitude. This recruitment effect immediately suggested possibility that the experiment contained a clue to an unknown chemical mediator for the lateral geniculate synapse (and inferentially for other synaptic types through out the central nervous system). Re-examination of the recovery cycle is under way.

Significance to Mental Health and Neurology Research: Fundamental physiology of the central nervous system, directly concerned with mechanisms of vision and neuropharmacological action of lysergic acid.

Proposed course of project: This project may terminate about the end of fiscal year 56; or, depending on developments, may continue indefinitely.

R.P.C. - 2
December 1954 Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-3
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL
FY 1955	$16,500.00	1	7	8	1/3	2	2-1/3
FY 1956	$16,800.00	1	7	8	1/3	2	2-1/3

12. BUDGET ACTIVITY:

Research

13. None

14. None

R.P.C. -1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Laboratory of Neurophysiology

3. General Neurophysiology Section 4. 5. NIMH-4
SERIAL NO.

6. Excitability and interaction of cortical neurons and the convulsive syndromes.

7. W. H. Marshall

8. None

9. Objectives: Previous studies conducted in this laboratory on the phenomena of spreading cortical depression have focused attention on ion shifts and high amplitude variations of neuron polarization and the relation of these items to dramatic variations of cortical excitability ranging from complete cessation of activity to hyperexcitable convulsive activity. We expect to continue these studies.

Methods employed: The arachnoid pool technic will be used combined with intra-arterial injection of certain B-6 derivatives. The excitability and polarization changes of the cortex will be followed by appropriate electrical technics. This project can be pursued only in a limited way until monkey facilities are available in the laboratory.

Major findings: No major findings have been made on this project during the past year.

Significance to Mental Health and Neurology Research: Fundamental physiology of the nervous system. Directly involved with convulsive syndromes and behavior problems in general.

Proposed course of project: Continue indefinitely, subject to tactical variations of attack.

R.P.C. - 2
December 1954 Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-4
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL
FY 1955	$14,450.00	1	7	8	1/3	1½	1-5/6
FY 1956	$15,000.00	1	7	8	1/3	1½	1-5/6

12. BUDGET ACTIVITY:

Research

13. None

14. None

R.P.C.- 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Laboratory of Neurophysiology

3. General Neurophysiology Section 4. 5. NIMH-5
SERIAL NO.

6. Resistivity of cerebral cortex

7. W. H. Freygang, Jr., W. M. Landau

8. W. H. Marshall

9. Objectives: Since activity in peripheral nerve is always accompanied by profound transient variations in membrane impedance, we set out to determine the relationship between the resistivity and the electrical activity of the cat's cerebral cortex in response to direct and indirect electrical excitation, spreading depression, and imposed gradients of electrical potential.

Methods employed: Cathode-ray oscillographic recording of the electrical activity appearing across the cortex as measured between micropipettes and the difference in electrical potential produced across the cortex by pulses of current having a constant field strength.

Major findings: 1. The resistivity of cortex under normal conditions is stable to within 1% and the mean is 222 ohm cm. 2. Spreading depression produces a 10-20% increase in total cortical resistivity most marked in the superficial layers, and a decrease in the subjacent white matter of about 5%. 3. Cortical resistivity is unaffected by changes in the level of cortical activity ranging from that of severe narcotization to that of maximal indirect excitation under light anesthesia. 4. Direct cortical stimulation produces a decrease in resistivity of about 3%.as does an imposed electrical gradient.

Significance to Mental Health Research: Provides a basis for testing the hypotheses employed to explain the production of the electrical activity in the cerebral cortex.

Proposed course of project: The results of this study are to be prepared for publication.

R.P.C. - 2
December 1954 Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-5
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL
FY 1955	$864.00	1		1	1/8		1/8
FY 1956	---------						

12. BUDGET ACTIVITY:

Research

13. None

14. None

R.P.C. - 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Laboratory of Neurophysiology

3. General Neurophysiology Section 4. 5. NIMH-6
SERIAL NO.

6. Intracellular recording from cortical neurons

7. W. H. Freygang, Jr.

8.

9. Objectives: To obtain a method for intracellularly recording the electrical activity of single cortical neurons without excessively damaging the cells and to influence the activity of the neurons with intracellularly applied currents.

Methods employed: Very fine capillary glass pipettes are inserted into the cat's cerebral cortex with a micromanipulator and the electrical activity of single cortical neurons is recorded from the pipette by means of a specially built amplifier of very high input impedance. Various waveforms of current are fed into the neurons via the pipettes.

Major findings: 1. Cortical neurons can produce a sustained and unchanging electrical response for short periods after being impaled by a pipette if measures are taken to reduce movements of the brain. 2. An outward current from the pipette of the order of 5×10^{-9} amperes will evoke electrical activity in cortical neurons.

Significance to Mental Health Research: The project shows promise of providing a means for determining the electrical parameters necessary for producing controlled activity in single cortical neurons.

Proposed course of project: The technical difficulties inherent in this project require much attention. An investigation of the interaction between synaptic and electrical activation of cortical neurons is planned.

R.P.C. - 2
December 1954 Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-6
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL
FY 1955	$14,250.00	1	3	4	3/4	1	1-3/4
FY 1956	$14,250.00	1	3	4	3/4	1	1-3/4

12. BUDGET ACTIVITY:

Research

13. None

14. None

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
2. Laboratory of Neurophysiology
3. Section on Cortical Integration
4.
5. NIMH-7
SERIAL NO.

6. Relations Between Electrical Stimuli, Behavior, and the Electrical Activity of the Brain of Unanesthetized Monkeys (Project I)

7. John C. Lilly

8. John R. Hughes

9. Objectives:

(1) Correlation of electrical activity picked up from the brain and the behavior of unanesthetized monkeys.

(2) Investigate parameters of stimuli applied to the sensorimotor cortex and the responses that are elicited in the unanesthetized animal.

(3) To find a class of electrical waveforms which when applied for long periods of time does not injure the brain, but which are effective stimulating agents.

Methods Employed:

(1) Implantation of arrays containing 25 to 121 electrodes through the skull in a monkey.

(2) Recording the electrical activity at 25 of these electrodes simultaneously with the bavatron (a television like recorder).

(3) Record the behavior of the animal on the same film as the electrical activity.

(4) Modification of the behavior including elicited movements by passing electrical stimuli into the electrodes.

(5) Convert motion picture record of the electrical activity into sequences of equi-potential contour maps.

Project Description Sheet

Major Findings:

(1) The electrical activity of the brain of the unanesthetized monkey contains reproducible entities called "figures", which are characteristic for spontaneous activity of excited states, sleep, evoked responses, voluntary movements, and seizures.

(2) A class of electrical waveforms which does not injure the cells of the brain has been found. This class consists of a brief pair of current pulses separated by a short-time interval: a positive pulse followed by a negative one, each of which contain an equal amount of electricity. The duration of each pulse is 30 millionths of a second. The time between them is 100 millionths of a second. Trains of these pulses used as stimuli for 4 to 5 hours per day in the brains of monkeys for periods up to 8 weeks cause no detectible injury. The responses elicited closely resemble those from more usual forms (60 cycle per second sine waves and rectangular pulses). Physiological changes in the state of the animal are accompanied by a sizeable (up to 100%) changes in the threshold current necessary to evoke a given movement; for example, the threshold in a dozing state can be as high as two times the threshold during an excited state.

(3) Other aspects of this project are still in the state of development. (a) An apparatus for automatically transforming the motion picture records of the electrical activity into equi-potential contour maps is being developed. (b) In order to obtain reproducible results with unanesthetized animals, it was found previously that a soundproof room is necessary; for the last year, this room has been in the hands of the Sanitary Engineering Branch; the drawings have been finished; construction has not started as yet. When this room is finished, we will be able to pick-up electrical patterns during voluntary movements on the part of the monkey and feed them back into the same electrodes in order to find out what the essential activity is for a given type of behavior.

Significance to MENTAL HEALTH Research:

(1) Contour map portrayal of the activity of the brain is the simplest method we have been able to devise to see what happens in the cortex during

Project Description Sheet

changes associated with (1) afferent inputs and (2) behavioral activity. This method will add to our knowledge and abilities to correlate brain activity and behavior.

(2) The development of a non-injurious electrical waveform for stimulation of the brain allows (a) long-term chronic experiments on modification of behavior in animals contributing to basic knowledge in neurophysiology and experimental psychology, (b) allows less injurious stimulation of the brains of mental patients, than is being done on patients with implanted electrodes by Heath, Solomon, Sem-Jacobsen, Hamlin, and Negrin at Tulane University, Boston Psychopathic Hospital, the Mayo Clinic, Yale University, and New York City, and (c) allows safer stimulation of the brains of neurological patients in neurosurgery.

Proposed course of project:

(1) After the completion of the soundproof room, to continue the experiments on the electrical patterns in the brain characteristic of different types of behavior in different states.

(2) To continue the experiments on electrical stimulation of different parts of the brain in order to modify the behavior or to elicit new types of behavior in the unanesthetized monkey.

(3) To combine these experiments, (1) and (2) above, in the form of feeding back patterns of recorded electrical activity through the same array of electrodes from which the records were made originally.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-7
SERIAL NO.

11. Budget data:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$26,800	3	3	6	1 2/3	2	3 2/3	0
FY 1956	$30,300	3	3	6	2 2/3	2	4 2/3	0

12. Budget Activity: Research

13. NINDB, Section on Neuropathology, Clinical Investigations,
Dr. Ellsworth C. Alvord, Jr.

14. None.

R.P.C. - 3
December 1954

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH-7
SERIAL NO.

16. (1) Surface Movements of Click Responses from Acoustic Cerebral Cortex of Cat: Leading and Trailing Edges of a Response Figure. Journal of Neurophysiology, 1954, Vol. 17, pages 521-532.

(2) Instantaneous Relations Between the Activities of Closely Spaced Zones on the Cerebral Cortex, Electrical Figures During Responses and Spontaneous Activity. The American Journal of Physiology, March 1954, Vol. 176, No. 3, pages 493-504.

(3) Recent Developments in Electroencephalographic Techniques, Discussion. Third International EEG Congress 1953 - Symposia.

(4) Surface Movements of Figures in the Spontaneous Activity of Anesthetized Cerebral Cortex: the Leading and the Trailing Edges. Journal of Neurophysiology, January 1955.

17. None.

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Laboratory of Neurophysiology

3. Section on Cortical Integration 4. 5. NIMH-8
SERIAL NO.

6. Establishment of a Near Zero Level of Physical Stimulation and its Effects on Brain Activity (Project II)

7. John C. Lilly

8. Thelma W. Galkin (Part A)

9. Objectives:

Part A -

To make a survey of the literature on individuals who were exposed to environments in which the physical stimuli were at a minimal level.

Part B - Exploratory experiments

(1) To devise an environment producing minimum possible levels of stimuli in terms of light, sound, gravitational effects, movement, temperature changes, pressures on the skin, etc..

(2) To observe the effect of this environment on monkeys and human subjects.

(3) To obtain fundamental base line data on brain activity and mind activity during a state of minimal imputs to the brain from the environment.

Methods Employed:

Part A

(1) Library research.

(2) Communication with persons who have been exposed to minimally stimulating environments i.e. American Speleological Society, Arctic Institute.

Part B

Methods have been under development for the last 16 months. Present approach is to suspend the subject

Project Description Sheet

in quiet water,* in the dark at such a temperature as to be neither warm nor cool (about 34.5°C) with a breathing mask which gives minimal stimulation. The mask has been the major problem: underwater masks from the Navy Experimental Diving Unit, the Army Engineers, and Chemical Warfare have been found to have too high unit pressures on small areas of the face, leading to (1) pressure stimuli and (2) eventual local anoxemic pain. Therefore, a program of mask development has been undertaken: with the help of Mr. Ichelson of the NIH Art Section, a method of making masks of rubber was developed. Five models have been devised; number five is the least stimulating, but not yet satisfactory. This development continues.

Major Findings:

Part A

To date many examples have been found in the literature of individuals isolated in boats or in the polar regions or in prison, but the factors of threat to life, cold, hunger, thirst, sun, etc. make it difficult to attribute the effects solely to reduction of the ordinary levels of stimulation.

Part B

(1) Any remaining continuous stimulus becomes extremely irritating and leads the subject to terminate the experiment.

(2) Patterns of activity resulting from previous stimuli slowly die out in the tank--the "half-life" seems to be about 1/2 to 1 hour.

(3) No psychopathological phenomona have been detected to date.

Significance to MENTAL HEALTH Research:

Part A

An evaluation of the significance of the literature on normal individuals who have been exposed to extreme environments.

* Tank devised and its use loaned by Physical Biology, NIAMD, Dr. Heinz Specht.

Project Description Sheet

Part B

This project will provide baseline data on effects of short-term isolation from the usual levels of stimulation. Since the work is essentially exploratory, we will be in a better position to evaluate its significance after satisfactory apparatus allows better experiments.

This work may allow us to more sharply distinguish between the effects on a normal person of purely voluntary isolation from physical stimuli and that of the involuntary isolation experienced by the mentally ill person; no systematic examination of such effects has yet been made; it may be that certain experiences in these circumstances are fundamental and characteristic for both the normal and the mentally ill person--the major differences may be due to attitudinal variables only. If so, the results may add to our basic understanding of causal factors in mental illness.

Proposed course of project:

Part A

Continue the search of literature, and communication with those who have been through such experiences.

Part B

To continue to reduce the stimuli. When stimuli are reduced to a sufficiently low level, to observe the effects of this environment on mental activity (humans) and the brain's electrical activity (animals). To observe the effect of single stimuli introduced on this low baseline.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-8
SERIAL NO.

11. Budget data:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$7200	1	2	3	1/3	1	1 1/3	0
FY 1956	$7200	1	2	3	1/3	1	1 1/3	0

12. Budget Activity: Research

13. Laboratory of Physical Biology, NIAMB, Dr. Heinz Specht.

14. None.

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Laboratory of Neurochemistry

3. Section on Physical Chemistry 4. Bethesda, Md. 5. NIMH-9
SERIAL NO.

6. Diffusion Properties of Lipid Membranes

7. Alexander Rich

8. Harry Elden

9. Project: Development of techniques for measuring the diffusion properties of lipid phases and lipid-protein membranes.

Objectives: The goal of this project is to determine under what circumstances molecules may diffuse through a layer of lipid molecules.

Methods employed: Thin films of lipid material are made, with aqueous solutions on both sides. Ionic as well as non-ionic substances are placed on one side of the membrane, and the presence of this material on the other side is measured. From these observations, diffusion constants can be determined.

Major findings: This project has just started and only initial experiments have been carried out.

Significance to Mental Health Research: Nerve membranes are composed of very thin bimolecular lipid layers. These membranes are probably responsible for the ion selective permeability characteristics of nerve tissue. In this research, we are trying to prepare membranes similar to those which exist in nerve cells and hope to study the manner in which they transport various molecular species. If these membranes exhibit selective ion transport properties, they may help to explain the mechanism of nerve action.

Proposed course of research: During the next year, we will try a variety of experimental techniques to prepare membranes. These may be made using the Langmuir methods for studying mono and poly molecular surface films. We will attempt to surround the films with a protein supporting agent, and measure diffusion through the membranes.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-9
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF.	OTHER	TOTAL	PROF.	OTHER	TOTAL
F.Y. 1955	2,900	2		2	1/3		1/3
F.Y. 1956	3,400	2		2	1/3		1/3

12. BUDGET ACTIVITY: Research

13. None

14. None

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Laboratory of Neurochemistry

3. Section on Physical Chemistry 4. Bethesda, Md. 5. NIMH-10 (SERIAL NO.)

6. Determination of the structure of coordination compounds of metals

7. J.D. Dunitz

8. Alexander Rich

9. Project: X-ray diffraction investigation of metal complexes.

Objectives: The objective is to determine the exact position of the metal atom as well as the positions of the other atoms in the coordinated molecule.

Methods employed: X-ray diffraction techniques are utilized to determine the manner in which molecules pack within a crystal. Single crystals are irradiated with monochromatic x-radiation and the intensity of diffracted spots are measured photographically.

Major findings: The structure of ferrocene has an iron atom at its center and two five membered rings (C_5H_5) surround it on two sides, so as to produce a "sandwich" arrangement. The bond distances and angles between all atoms have been determined with a three dimensional Fourier map.

Significance to Mental Health Research: In order to understand the role which metal atoms play in biological systems, it is important to have a basic understanding of how they interact with other molecules. X-ray analysis is an aid to this understanding. Information obtained concerning the distances between various atoms is useful in interpreting the forces between the atoms or between molecules. An example of the role which metal atoms play in mental health may be seen in Wilson's disease, in which copper atoms accumulate in certain areas of brain tissue, for reasons which are unknown at present.

Proposed course of project: The ferrocene problem is almost completed. During the next year, we will try to determine the structure of another metal complex, possibly one involving a nucleic acid derivative.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-10
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF.	OTHER	TOTAL	PROF.	OTHER	TOTAL
F.Y. 1955	5,600	2		2	2/3		2/3
F.Y. 1956	5,700	2		2	2/3		2/3

12. BUDGET ACTIVITY: Research

13. None

14. None

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Laboratory of Neurochemistry

3. Section on Physical Chemistry 4. Bethesda, Md. 5. NIMH-11
SERIAL NO.

6. The Electronic Structure of Metal Coordination Compounds

7. J.D. Dunitz

8. ----

9. Objectives: To obtain a satisfactory theory of the electronic structures of coordination compounds of metals.

Methods employed: This investigation is conducted on the theoretical level. Molecular orbital calculations are carried out on various structures to determine their stability and properties.

Major findings: Molecular orbital theory has already been successfully applied to metal bis-cyclopentadienyl compounds (Dunitz and Orgel) to produce a more satisfactory picture of the electronic structure than can be derived from the conventional bond structure. Molecular orbital theory is now being applied to hemoglobin and various heme derivatives. The observed magnetic moments are explained nicely in terms of the new theory. The peroxidase and methemoglobin complexes recently described as containing Fe^{+4} can be reinterpreted as being derivatives of Fe^{+2}.

Significance to Mental Health Research: Heme derivatives are essential in carrying out cellular activities in cerebral as well as other tissues. These investigations are directed towards a fundamental understanding of their constitution.

Proposed course of project: During the next year, these calculations will be extended to other coordination compounds, with possible applications to metal enzyme systems.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-11
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF.	OTHER	TOTAL	PROF.	OTHER	TOTAL
F.Y. 1955	2,300	1		1	1/3		1/3
F.Y. 1956	2,600	1		1	1/3		1/3

12. BUDGET ACTIVITY: Research

13. None

14. None

R.P.C. - 3
December 1954

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH-11
SERIAL NO.

16. Electronic Structure of Metal bis-cyclopentadienyls, by J.D. Dunitz and L.E. Orgel, J.Chem. Physics (in press).

17. None

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Laboratory of Neurochemistry

3. Section on Physical Chemistry 4. Bethesda, Md. 5. NIMH-12
SERIAL NO.

6. The Metal Complexes of Nucleosides, Nucleotides, and Nucleic Acids.

7. G.L. Eichhorn

8. None

9. Objectives: To determine the role of the metal ions in the function of the nucleotide enzymes, and to aid in the elucidation of the structure of the nucleic acids.

Methods employed: The nucleic acids and their degradation products, the nucleotides, nucleosides and nucleoside bases, are allowed to interact with a variety of metal ions. The resulting complexes are studied by isolation in the solid state, and by spectrophotometry chromatography, and pH titration.

Major findings: The project is as yet in its initial stages. The most significant observation to date has been that many of these compounds do not complex with metal instantaneously, but will react if sufficient energy is provided.

Significance to Mental Health Research: If the preliminary indications that energy is required for the formation of the nucleoside base complexes is confirmed, this may lead to an understanding of the role of the protein molecule in enzyme-metal ion-substrate complexes. The protein may have an enzymatically active surface which will interact with the metal ion and substrate complexation may then occur in the absence of additional added energy. This understanding would be of basic importance in interpreting metal ion behavior in cellular systems.

Proposed course of project: The exact conditions under which the nucleic acids and their decomposition products form metal complexes will be determined, and a study will be made of the sites in the organic molecules to which the metals are bound. If reaction with the metal ions produces changes in the organic molecules, such changes will be studied in the light of their relationship to enzyme activity. A comparison of the characteristics of the complexes of the degradation products should shed some light on the structure of the nucleic acids themselves.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-12
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF.	OTHER	TOTAL	PROF.	OTHER	TOTAL
F.Y. 1955	4,900	2		2	1/3		1/3
F.Y. 1956	5,300	2		2	2/3		2/3

12. BUDGET ACTIVITY: Research

13. None

14. None

RP.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1 National Institute of Mental Health 2. Laboratory of Neurochemistry

3 Section on Physical Chemistry 4. Bethesda, Md. 5. NIMH-13
SERIAL NO.

6 Determination of the Structure of Ribonucleic Acid

7 Alexander Rich

8 None

9 Project: Determination of the Structure of Ribonucleic Acid

Objectives: The objective of this project is to obtain x-ray diffraction patterns of ribonucleic acid which can be interpreted so that we can understand molecular configuration of this substance.

Methods employed: Dry samples of ribonucleic acid are moistened and then stretched into the form of a fiber, using a micro manipulator. The diffraction pattern from these fibers is photographed using monochromatic x-radiation. The photographs are then interpreted, using molecular models to build the structure.

Major findings: X-ray patterns obtained so far have demonstrated that all ribonucleic acids have the same structure, whether from microbiological, plant or animal sources. In addition, the patterns have been interpreted as indicating a helical structure in the molecule with a repeat distance along the fiber axis of 26A°. Different phase modifications have been demonstrated with varying water contents.

Significance to Mental Health Research: Ribonucleic acid is a large molecule located inside all cells. It is believed to have an important role in protein synthesis, and may determine the sequence specificity of amino acids in polypeptide chains. An understanding of its structure may aid in interpreting its intracellular role.

Intracellular microsomes contain approximately 50% ribonucleic acid. These particles have been found in nerve cells, located on the cell body membrane opposite the terminal button of the synapse. Its role in that site is as yet unknown, and a determination of the structure may be of aid in interpreting its activity.

Proposed course of research: What is needed most critically at present is an x-ray diffraction photograph which has better resolution. This involves preparing undegraded material, and using finer fibers to obtain a better pattern. Attempts along this line will be pursued.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-13
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS PROF.	OTHER	TOTAL	MAN YEARS PROF.	OTHER	TOTAL
F.Y. 1955	5,900	1		1	2/3		2/3
F.Y. 1956	5,900	1		1	2/3		2/3

12. BUDGET ACTIVITY: Research

13. None

14. None

R.P.C. - 3
December 1954

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH-13
SERIAL NO.

16. a. Physical Studies on Ribonucleic Acid Fibers by A.Rich and J.D. Watson, Nature, 173, 995, (1954).

b. Some relations between DNA and RNA by A.Rich and J.D. Watson, Proc. Nat. Acad. Sci., 40, 759, (1954).

c. Recent Studies on the Structure of Ribonucleic Acid by A.Rich, Adv. in Neurochem., 1, (1954) in Press.

17. Invitation to deliver Sigma Xi Lecture on this subject at George Washington University, November 18, 1954.

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-14
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF.	OTHER	TOTAL	PROF.	OTHER	TOTAL
F.Y. 1955	3,900	3		3	1/3		1/3
F.Y. 1956	4,400	3		3	2/3		2/3

12. BUDGET ACTIVITY: Research

13. None

14. None

R.P.C. 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-15
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF.	OTHER	TOTAL	PROF.	OTHER	TOTAL
F.Y. 1955	4,900	2		2	1/3		1/3
F.Y. 1956	5,700	2		2	2/3		2/3

12. BUDGET ACTIVITY: Research

13. None

14. None

R.P.C. - 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Neurochemistry
LABORATORY

3. Section on Cerebral Metabolism
SECTION

4. Bethesda, Maryland
LOCATION

5. NIMH-16
SERIAL NO.

6. Studies of the Circulation and Metabolism of the Human Brain.
I. Effects of Lysergic Acid Diethylamide and Chlorpromazine on Cerebral Blood Flow and Metabolism and Psychological Phenomena.
II. The Effects of Anxiety on the Cerebral Circulation and Metabolism.
III. Age Changes in Cerebral Blood Flow and Metabolism.
PROJECT TITLE

7. Louis Sokoloff
PRINCIPAL INVESTIGATOR

8. Seymour S. Kety, Seymour Perlin, James Birren, and Conan Kornetsky
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: Information is needed on the effects on cerebral blood flow and oxygen consumption of various drugs which produce pronounced alterations in mental functions of both normal and psychotic individuals. It is also necessary to test our earlier evidence suggestive of an association between cerebral oxygen consumption and anxiety. Finally, it is hoped to determine whether the reduction in cerebral oxygen consumption found with advancing age is a consequence of a chronic cerebral anoxia resulting from an inadequate circulation or whether cerebral blood flow is reduced because of a reduction in cerebral metabolic rate secondary to primary changes in the brain.

Methods Employed: The nitrous oxide technique for the measurement of cerebral blood flow and oxygen consumption in human subjects is the method employed. Spectrophotometric methods for arterial and cerebral venous oxygen saturation and a fluorometric method for blood epinephrine level are also to be employed.

Major Findings: Initial studies of the effects of lysergic acid diethylamide have failed to indicate any remarkable effect on the over-all cerebral circulation and metabolism despite its psychological effects.

Project Description Sheet

1. Medical Institute of Naval Health
   [illegible]

2. Laboratory of Aerospace Medicine
   [illegible]

3. Medical Institute of Naval Health
   [illegible]

4. Studies on Cardiac Pathophysiology
   [illegible]

5. Studies of Cardiovascular Adaptation
   [illegible]

6. Studies of the Circulation and Metabolism of the Human Brain.
   I. Effects of Hypoxia in Normal Physiologic and Chemoreceptive on Cerebral Blood Flow and Cerebral Metabolism in Homeostasis.
   II. The Effects of Anoxia on the Cerebral Circulation and Metabolism.
   III. Are Human Hemoglobins Functionally Equivalent?
   [illegible]

7. Medical Study of
   [illegible]

8. Effects of Acute Hypoxia, Hypercapnia, Hyperventilation, and Cerebral Hemorrhage
   [illegible]

9. [illegible]

Objectives: Hypoxia is known to have an adverse effect on cerebral blood [illegible] of a [illegible] during which problems [illegible] in both normal and [illegible] to test our earlier [illegible] hypoxia causing cerebral anoxia [illegible] is known to be detrimental [illegible] cerebral circulation found with [illegible] of cerebral metabolic [illegible] in cerebral [illegible] in the brain.

[illegible] for the measurement of [illegible] in human subjects [illegible] methods for [illegible] cerebral [illegible] cerebral blood [illegible].

[illegible] anoxia with [illegible] hypercapnia [illegible] in cerebral [illegible] in the [illegible].

Project Description Sheet

NIMH-16
SERIAL NO.

Significance to MENTAL HEALTH Research: All the aspects of this project involve disturbances in mental or emotional functions whether arising from the effects of drugs, emotional disturbances, or the degenerative processes of aging. In this respect, therefore, studies of cerebral circulation and metabolism in these conditions is directly pertinent to problems of mental health.

Proposed Course of Project: Studies will be continued on normal and schizophrenic subjects until representative groups have been adequately tested and the effects of the drugs in question determined in both groups. The degree of anxiety at the time of the study will be evaluated subjectively and by psychological testing and will be correlated with the values obtained for cerebral blood flow and oxygen consumption. It is planned to set up a fluorimetric method for the estimation of epinephrine in blood and to employ this method to correlate the level of circulating epinephrine, the degree of anxiety, and the cerebral metabolic rate. Similar studies will be performed in representative groups of normal and psychotic aged subjects to observe differences, if any, in their cerebral circulation and metabolism. Oxygen saturation of the cerebral venous blood will be studied in the aged to determine if cerebral anoxia is a factor of importance in the changes observed in the brain with aging.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-16
SERIAL NO.

11. BUDGET DATA

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL
FY 1955	10,600	3	2	5	1.2	0.8	2.0
FY 1956	12,200	3	2	5	1.2	0.8	2.0

12. BUDGET ACTIVITY: RESEARCH

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956:

This project is being carried out cooperatively and simultaneously with the Laboratory of Psychosomatic Investigations and the Section on Aging, Laboratory of Psychology, of NIMH.

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH:

None

R.P.C. - 3
December 1954

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH-16
SERIAL NO.

16. LIST PUBLICATIONS OTHER THAN ABSTRACTS FROM THIS PROJECT DURING CALENDAR YEAR 1954:

Kety, S.S.: Changes in cerebral circulation and oxygen consumption which accompany maturation and aging. Proceedings of the First International Neurochemical Symposium, 1954. (In press)

Sokoloff, L.: The relation of cerebral circulation and metabolism to mental activity. In Current Research in Neurochemistry and Allied Fields. Paul D. Hoeber, Inc., New York, 1955. (In press)

17. LIST HONORS AND AWARDS TO PERSONNEL RELATING TO THIS PROJECT DURING CALENDAR YEAR 1954:

Dr. Kety was elected Chairman of the Research Advisory Board of United Cerebral Palsy and invited to the First International Neurochemical Symposium at Oxford.

R.P.C. - 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Neurochemistry
LABORATORY

3. Section on Cerebral Metabolism
SECTION

4. Bethesda, Maryland
LOCATION

5. NIMH-17
SERIAL NO.

6. Development of a Method for the Rapid, Continuous Measurement of Cerebral Blood Flow in Man.
PROJECT TITLE

7. Louis Sokoloff
PRINCIPAL INVESTIGATOR

8. Seymour S. Kety, Benjamin M. Lewis (U. S. Navy)
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: The objectives of this project are the development of a method for the rapid, continuous measurement of cerebral blood flow and oxygen consumption in man and its application to a variety of conditions in which these functions may be changing rapidly.

Methods Employed: The method employed is one based on the Fick Principle utilizing radioactive Krypton gas (Kr^{79}) as the tracer material whose quantity and concentration is continuously determined in brain and arterial and cerebral venous blood by means of scintillation counting equipment.

Major Findings: Geometric variables in the measurement of radioactivity from blood and brain have been controlled by means of correction factors experimentally determined from studies on phantom models. Adequate lead shields with which to eliminate radiation from body parts other than the head have been designed, constructed, and tested. The effects of Compton scattering of γ-radiation on measurements of Kr^{79} in the brain have been evaluated and found to be negligible. Preliminary studies of the effects of radiation from scalp and skull on the measurements made in brain also indicate negligible influence. Initial studies in normal young men have yielded reasonably good agreement with the results obtained by the standard nitrous oxide technique and have given apparently valid values for minute to minute changes in cerebral blood flow.

Project Description Sheet

NIMH-17
SERIAL NO.

Significance to MENTAL HEALTH Research: The primary significance of this method is in the field of aviation physiology; however, it will also permit the measurement of changes in cerebral blood flow and oxygen consumption in a number of conditions of interest to mental health research in which these changes are too rapid and fleeting to be measured by present methods.

Proposed Course of Project: Further evaluation of possible errors from scalp and skull radiation will be made. Studies will be performed on a series of normal young men by this method and will be compared with results obtained simultaneously with the nitrous oxide method. Effects of drugs known to alter cerebral blood flow will be determined. Eventually, it is hoped to apply this method to an investigation of the cerebral circulatory effects of accelerative forces (e.g. "blackout", "red-out") which constitute an important limitation in supersonic flight.

R.P.C.- 2
December 1954 Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-17
SERIAL NO.

11. BUDGET DATA: See Item 13

12. BUDGET ACTIVITY: RESEARCH

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956:

This project is being pursued in collaboration with the Aviation Medical Acceleration Laboratory, U. S. Naval Air Development Center, Johnsville, Pennsylvania, and the Department of Physiology and Pharmacology, Graduate School of Medicine, University of Pennsylvania. These institutions are supplying the financial support, staff, and the subjects for these studies which are performed in their laboratories under the direction of Dr. Louis Sokoloff and Dr. Seymour S. Kety of NIH.

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH:

None to our knowledge.

R.P.C. - 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Neurochemistry
LABORATORY

3. Section on Cerebral Metabolism
SECTION

4. Bethesda, Maryland
LOCATION

5. NIMH-18
SERIAL NO.

6. The Rate of Transfer of Thyroxine and Related Compounds from Blood to Brain
PROJECT TITLE

7. Louis Sokoloff
PRINCIPAL INVESTIGATOR

8. None
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: The purpose of this project is to determine whether thyroxine and related chemical mediators of thyroid function penetrate the blood-brain barrier and, if so, the rates of penetration into brain tissue as compared with tissues, such as liver, which are known to be influenced by the activity of the thyroid hormone.

Methods Employed: Radioactive iodine tagged thyroxine or related compounds are injected intravenously in adult rats. At variable times later, the specific activities of the tracer material under investigation are determined in brain, blood, and liver, and the rates at which the tissue's specific activities approach equilibrium with that of blood are calculated.

Major Findings: Two electro-titrometric methods for measuring iodide in tissue in minute amounts have been developed in preliminary form. Inorganic iodide has been found to penetrate brain tissue from blood, but at a rate considerably slower than that for liver. Brain blood content has been determined to be approximately 5% of total brain weight.

Significance to MENTAL HEALTH Research: A unique feature of cerebral metabolism is its apparent lack of response to high circulating levels of thyroid hormone. An understanding of the basis of this unique behavior may reveal information concerning the cerebral metabolism in both health and disease. A possible basis which must be evaluated is the inability of the thyroid hormone to penetrate the blood-brain barrier.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

NIMH-18 Project Description Sheet
SERIAL NO.

Proposed Course of Project: Micro-analytical methods under development will be refined, tested, and applied. Studies will be performed as outlined under "Methods" on a sufficient number of animals to provide reliable data on the transfer rates from blood to brain of the following I^{131} tagged materials related to thyroid function: inorganic iodide, thyroxine, tri-iodothyronine, and di-iodothyronine.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-18
SERIAL NO.

11. BUDGET DATA

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL
FY 1955	10,500	3	2	5	1/3	2/3	1
FY 1956	12,200	3	2	5	1/3	2/3	1

12. BUDGET ACTIVITY: RESEARCH

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956:

During the first few months of fiscal year 1955, the part-time cooperation of Dr. Jack Durell of the Laboratory of Cellular Pharmacology, National Institute of Mental Health, was available for this project.

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH:

None to our knowledge.

R.P.C. - 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Neurochemistry
LABORATORY

3. Section on Cerebral Metabolism
SECTION

4. Bethesda, Maryland
LOCATION

5. NIMH-19
SERIAL NO.

6. Measurement of Local Circulation in the Brain
PROJECT TITLE

7. Seymour S. Kety
PRINCIPAL INVESTIGATOR

8. Walter H. Freygang, Jr., William M. Landau, Louis Sokoloff, and Lewis P. Rowland
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: Development of a technique for estimating regional circulation in the brain and its application to physiological and pharmacological investigation.

Methods Employed: A mathematical expression was derived relating the tissue concentration of a freely diffusible inert substance to the history of its concentration in arterial blood, its diffusion and solubility, and the capillary blood flow per unit weight of tissue. By using a radioactive inert gas (trifluoroiodomethane), the arterial concentration can be recorded continuously by means of an appropriately designed scintillation counter and, by autoradiography, the concentration in the tissue calculated. From these data and the equation developed, capillary blood flow is calculated.

Major Findings: A total of more than 50 experiments have now been performed in cats under thiopental anesthesia and in the unanesthetized state, and reasonable and reproducible values for blood flow in approximately 30 individual regions of the brain have been obtained. In the white matter of the spinal cord and brain, values from 14 to 27ml/100g/min have been obtained. Considerably higher values have been observed in the gray matter of 25 structures. The lowest of these, 59ml/100g/min, was found in the reticular formation. The highest, 180ml/100g/min, in the inferior colliculi with intermediate values in the other structures. Values obtained in those areas of the cerebral cortex generally associated with somatosensory, visual, and auditory functions were very high, surpassed only by those of the inferior colliculi and greatly exceeding values in other areas of the cortex. Data on the effect of pentothal anesthesia are now being collected and analyzed.

NIMH-19
SERIAL NO.

Project Description Sheet

Significance to NEUROPSYCHIATRIC Research: The circulation of the brain is fundamental to a proper functioning of that organ and disturbances in the cerebral circulation are known to be the basis of important neurological disorders and may possibly play a role in many neuropsychiatric diseases of unknown etiology. Although measurement of the total circulation to the brain has been possible for the past decade, there has been no satisfactory approach heretofore to the question of local circulation to the many complicated structures in the brain. Development of this technique and its continued application should lead to a better understanding of normal and abnormal brain function and a means for evaluating various drugs and other types of therapy.

Proposed Course of Project: A considerable proportion of the next calendar year will be devoted to attempts to improve and validate the technique and to apply it to additional conditions, among these being sleep, increased functional activity, and the effects of certain drugs such as serotonin, LSD, epinephrine, and other agents with important nervous effects.

R. P. C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-19
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL
FY 1955	10,600	3	2	5	2.5	0.5	3.0
FY 1956	12,300	3	2	5	2.0	1.0	3.0

12. BUDGET ACTIVITY: RESEARCH

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956:

Dr. Freygang and Dr. Landau of the Laboratory of Neurophysiology, NIMH, and Dr. Rowland of Clinical Investigations, NINDB, collaborated in this project.

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH:

None

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH-19
SERIAL NO.

16. LIST PUBLICATIONS OTHER THAN ABSTRACTS FROM THIS PROJECT DURING CALENDAR YEAR 1954:

None

17. LIST HONORS AND AWARDS TO PERSONNEL RELATING TO THIS PROJECT DURING CALENDAR YEAR 1954:

Max Weinstein Award to Dr. Seymour S. Kety.

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Cellular Pharmacology
LABORATORY

3. Sections to be set up
SECTION

4. Bethesda, Maryland
LOCATION

5. NIMH-20
SERIAL NO.

6. Organization of the Laboratory, "Tooling up" and Preparation of Enzymes

7. Giulio L. Cantoni, M. D.
PRINCIPAL INVESTIGATOR

8.
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

The Laboratory of Cellular Pharmacology is a newly developed unit, which had to be built up from scratch. The organization of a laboratory equipped to carry out a wide variety of biochemical and neuropharmacological studies is a task of some magnitude. The selection and purchase of equipment alone represents a sizable job: it is estimated, for instance, that somewhere between 4000 and 6000 individual items and about 1000 different chemicals had to be selected from the available catalogues, suitably described and ordered. Furthermore, upon receipt, a great many pieces of apparatus of various degrees of complexity had to be assembled, tested and put in operating condition. This is indeed common procedure and the magnitude of the task involved is well-known to those of our colleagues who have had previous experience along these lines, but it nevertheless merits brief description in a report of the year's activities.

In addition, a great variety of nonrecurring tasks had to be completed, such as personnel recruitment, both at the professional and nonprofessional level, training of technical help, design and supervision of minor alterations in the laboratories and construction of special items, cataloguing and inventory of apparatus, chemicals and library materials. While some of these tasks are encountered in the normal operation of a laboratory, the first year, of necessity, has seen the simultaneous occurrences of all these activities and others too numerous to be described.

Finally, a large effort was devoted to preparation of a large stock of purified enzyme and intermediates. In recent years it has become increasingly clear that enzymes can be used as reagents and tools in biochemical investigations. Methods have been developed for the preparation of enzymes in a high state of purity and along with this technological

NIMH-20
SERIAL NO.

9. PROJECT DESCRIPTION (Continued)

advance has come information that under certain conditions proteins in pure or highly purified form are relatively stable. It appeared desirable, therefore, to prepare a variety of enzymes for the general use of the laboratory. The following enzymes have been or will be prepared in the course of this project:

Potato phosphatase
Yeast hexokinase
Yeast pyrophosphatase
Yeast zwichenferment
Beef liver catalase
Rabbit muscle aldolase
Rabbit muscle triosephosphate dehydrogenase
Rabbit muscle phosphorylase
Rabbit muscle creatine kinase
Rabbit muscle pyruvate kinase
Rabbit muscle glycolyzing enzymes
Rabbit muscle α glycerophosphate dehydrogenase
Rabbit muscle adenylate kinase
Rabbit muscle lactic dehydrogenase
Rabbit liver methionine activating enzyme
Pig liver guanidino-acetate methylpherase
Calf liver glucose dehydrogenase
E. coli acetokinase
Cl. kluverii transacetylase
Pig heart "phosphorylating enzyme"
Pig heart "condensing enzyme"
Pig heart coenzyme A transferase
Horse liver glutamic dehydrogenase

In addition, a variety of coenzymes, intermediates and special reagents have been prepared or purified. These include ion exchange resins, alumina cγ, Ca phosphate gel, Norite, DPN, DPNH, trishydroxymethylamino methane, ATP and ADP, etc.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-20
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF.	OTHER	TOTAL	PROF.	OTHER	TOTAL
FY 1955	47,078	1-1/2	3 3	4-1/2	1-1/2	1-1/4	2-3/4
FY 1956	--	--	--	--	--	--	--

12. BUDGET ACTIVITY:

Research
Administration

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Cellular Pharmacology
LABORATORY

3.
SECTION

4. Bethesda, Maryland
LOCATION

5. NIMH-21
SERIAL NO.

6. The mechanism of action of the methionine activating enzyme
PROJECT TITLE

7. Giulio L. Cantoni, M. D.
PRINCIPAL INVESTIGATOR

8.
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Background, Proposed Course and Objective: As a result of earlier work by the principal investigator it has been established that ATP participates as an essential requirement in those enzymatic transmethylations in which methionine is the methyl donor.

The role of the ATP in such reactions is related to the activation of methionine as described in equation 1.

$$1.\quad \text{L-methionine} + \text{ATP} \xrightarrow[\text{Mg}]{\text{GSH}} \text{S-adenosylmethionine} + 3 \text{ orthophosphates}$$

S-adenosylmethionine is a sulfonium compound characterized by the fact that, unlike methionine itself, it can function as a methyl donor even in the absence of ATP. Thus it has become clear that the difference between the methyl-onium compounds and methionine is only apparent because, in fact, methionine undergoes conversion to a sulfonium compound prior to the release of its methyl group.

The formation of AMe from methionine and ATP possesses a number of unusual features. As is well known, the position of ATP in biological processes has hitherto been attributed to the release of considerable amounts of energy by the cleavage of its two pyrophosphate bonds. Thus the role of ATP is generally related to its ability to function as a phosphate donor. On the other hand, the bond between the ribose and the polyphosphate chain in ATP is relatively low in energy content.

9. PROJECT DESCRIPTION (continued)

On the basis of theoretical considerations and experimental findings, we have tentatively arrived at the conclusion that the methyl sulfonium linkage in AMe is energy-rich, that is, it can be calculated that approximately 10,000 calories are released from the cleavage of this bond.

Thus a point of interest in the mechanism of formation of AMe lies in the fact that a new energy-rich bond is formed apparently at the expense of the energy-poor ester linkage between the ribose and the phosphate residue in ATP.

A further point of interest lies in the fact pointed out earlier that the liberation in the course of the activation reaction (eq. 1) of all three phosphates of ATP as orthophosphate can be explained only by assuming secondary hydrolytic reactions.

The problem will be approached in several ways, both by the application of radioactive tracer techniques and by means of enzyme purification studies.

Significance to Mental Health Research: The role of methylated compounds in neurophysiological phenomena and the neuropharmacological activity of compounds possessing N-, S- or O-methyl group is well known. At the present time the most satisfactory working hypothesis suggests that the methyl group in all cases is derived from L-methionine. On the basis of available work it has been proposed that the activation of L-methionine, which is catalyzed by the MAE, is a prerequisite to methyl transfer. An elucidation of the mechanism of this reaction would therefore be a great advance in our understanding of biological methylation mechanisms. However, the significance of the reaction catalyzed by MAE is not limited to transmethylation but is of importance in the area of cellular energy metabolism and as such is of general biological interest.

It is expected that this project, or project directly stemming from this, will continue throughout the fiscal year 1956.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-21
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF.	OTHER	TOTAL	PROF.	OTHER	TOTAL
FY 1955	8,792	1/2	1	1-1/2	1/4	2/3	11/12
FY 1956	18,470	1/2	2	2-1/2	1/2	2	2-1/2

12. BUDGET ACTIVITY: Research.

R.P. C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Cellular Pharmacology
LABORATORY

3.
SECTION

4. Bethesda, Maryland
LOCATION

5. NIMH-22
SERIAL NO.

6. The biological methylation of phenols
PROJECT TITLE

7. Bruce N. Ames, Ph.D., and G. L. Cantoni, M.D.
PRINCIPAL INVESTIGATORS

8.
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Background, Proposed Course and Objective: The methoxy group is extremely widespread in nature, especially in such compounds as the plant alkaloids. It is planned to study the enzymatic mechanism of the methylation of the phenol group. Specifically, we propose to investigate the methylation of dihydroxylbenzaldehyde to vanillin in plants; this reaction can be looked upon as a model system for the study of this type of reaction at an enzymatic level. Vanillin is present in the free form in many plants and may be involved in plant metabolism as a lignin precursor. From this model system we hope eventually to be able to extend the study to such families of methoxy alkaloids as the mescaline group or the morphine group.

The techniques used will be mainly those of enzymology. It is expected that a fair amount of time will be spent in synthesizing substrates, in purifying enzymes and studying their properties.

Significance to Mental Health Research: It is hoped that this project will help to relate the significance of this group to the pharmacological activity of compounds in which a methoxy group is present. It is also hoped that a comparison of O-methylation with the well-known S- and N- methylation reactions will aid in the understanding of the transfer of methyl groups in general.

It is expected that this project, or project directly stemming from this, will continue throughout the fiscal year 1956.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-22
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF.	OTHER	TOTAL	PROF.	OTHER	TOTAL
FY 1955	6,029	1/2	2/3	1-1/6	1/3	1/3	2/3
FY 1956	11,588	1-1/6	2/3	1-5/6	1-1/6	2/3	1-5/6

12. BUDGET ACTIVITY: Research

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Cellular Pharmacology
LABORATORY

3.
SECTION

4. Bethesda, Maryland
LOCATION

5. NIMH-23
SERIAL NO.

6. The study of betaine methylpherase and its relation to thetin methylpherase
PROJECT TITLE

7. Jack Durell, M.D. and G. L. Cantoni, M.D.
PRINCIPAL INVESTIGATORS

8.
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Background, Proposed Course and Objective: Previous work done at Western Reserve University by Dr. D. A. Anderson in collaboration with one of us (G. L. C.) has resulted in considerable purification of thetin methylpherase, an enzyme catalyzing reaction (1).

(1) dimethylthetin + homocysteine $\longrightarrow$ methionine + methylthioglycolic Acid + H^+

In the course of these studies it became clear that betaine methylpherase, which catalyzes reaction (2)

(2) betaine + homocysteine $\longrightarrow$ dimethylglycine + methionine

could be separated from thetin methylpherase, and an attempt will be made to purify the former, employing standard procedures. A number of quarternary ammonium and sulfonium compounds will be studied to determine which are suitable substrates, and which compounds act as acceptors. Using radioactive carbon and sulfur, and possibly deuterium, as labels, the nature of the enzyme substrate complex and the reaction mechanism will be studied.

NIMH-23
SERIAL NO.

9. PROJECT DESCRIPTION (Continued)

Significance to Mental Health Research: "Onium" compounds in general have profound effects, both inhibitory and excitatory, on neural tissue, and have found extensive pharmacological application. The existence of an intimate relation between "onium" compounds, e.g. acetylcholine, and normal neural function is certain. Any studies of the biochemical mechanism for formation and utilization of "onium" compounds are likely to increase understanding of normal and deranged neural function.

It is expected that this project or project directly stemming from this will continue throughout the fiscal year 1956.

R.P.D. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-23
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF.	OTHER	TOTAL	PROF.	OTHER	TOTAL
FY 1955	9,155	2/3	1/3	1	7/12	1/4	5/6
FY 1956	13,353	1-1/6	2/3	1-5/6	1-1/6	2/3	1-5/6

12. BUDGET ACTIVITY: Research

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Cellular Pharmacology
LABORATORY

3.
SECTION

4. Bethesda, Maryland
LOCATION

5. NIMH-24
SERIAL NO.

6. The conversion of glycine to acetate
PROJECT TITLE

7. Seymour Kaufman, Ph.D.
PRINCIPAL INVESTIGATOR

8.
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Background, proposed Course and Objective: Although substantial progress has been made in our understanding of fat and carbohydrate metabolism during the last ten to fifteen years, the details of protein and amino acid metabolism have remained obscure. In general, it is clear that there are many points where carbohydrate and amino acid metabolism merge. Perhaps the major locus of interaction is the citric acid cycle. As part of a broad study of the interrelationships between the citric acid cycle and amino acid metabolism, the conversion of glycine to acetate will be investigated. Glycine, being the first member in the series of amino acids, is in many ways a logical point of departure for such a study.

Of the many possible approaches to problems of intermediary metabolism, the one which has perhaps been most fruitful in past studies deals with the fractionation and purification of the individual enzymes involved. By this means, intermediates which ordinarily are further metabolized, are found to accumulate. The separation and identification of these intermediates may involve classical methods of organic chemistry, in addition to the more recent techniques of paper and ion exchange chromatography.

Significance to Mental Health Research: There are numerous examples of how progress in the field of intermediary metabolism has provided a clearer picture of certain biological phenomena. The elucidation of the mechanism of anaerobic glycolysis, for example, has had a profound impact on our understanding of the process of muscular contraction. In the same manner, a full understanding of nervous activity may ultimately depend on a greater knowledge of intermediary metabolism. Since, as has already been

NIMH-24
SERIAL NO.

9. PROJECT DESCRIPTION (Continued)

mentioned, research in amino acid metabolism has lagged behind that in other fields, this is an area where more basic information is needed.

The finding that glutamine administration may have some beneficial effect for mentally retarded children suggests the possibility that a greater knowledge of basic amino acid metabolism could be of special value for the understanding of nerve function.

It is expected that this project or project directly stemming from this will continue throughout the fiscal year 1956.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-24
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF.	OTHER	TOTAL	PROF.	OTHER	TOTAL
FY 1955	11,669	2/3	3/4	1-5/12	1/2	3/4	1-1/4
FY 1956	19,743	1	1-2/3	2-2/3	1	1-2/3	2-2/3

12. BUDGET ACTIVITY: Research

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Cellular Pharmacology
LABORATORY

3. _____
SECTION

4. Bethesda, Maryland
LOCATION

5. NIMH-25
SERIAL NO.

6. Comparative Enzymology
PROJECT TITLE

7. Dr. Giulio L. Cantoni and collaborator to be appointed
PRINCIPAL INVESTIGATOR

8. _____
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Background, Proposed Course and Objective: The fundamental working hypothesis in cellular pharmacology suggests that drugs act by interfering with enzymatic reactions in the cell. The well-known specificity of pharmacological response clearly points to differences in the biochemical make-up of different cells and tissues. Therefore, any explanation of the mode of action of drugs at the enzyme level must take into account differences in the enzymatic and metabolic pattern in different tissues. Although, on the basis of the present evidence, very little information is available, it appears that different cells vary not only in their metabolic pathways, but also in the nature and characteristics of the enzymes catalyzing the same chemical reactions.

A comparison of enzymes which catalyze the same reaction in different tissues or in different species will be made. The enzyme will be compared with regards to kinetics, substrate specificity and coenzyme requirements. This project has not yet been initiated, for it awaits the appointment of a suitable investigator to collaborate with Dr. G. L. Cantoni on this phase of the work. Negotiations to fill such a position are well under way at the present time and it is hoped to initiate the project late in the spring of 1955. The project will continue throughout the fiscal year 1956.

NIMH-25
SERIAL NO.

9. PROJECT DESCRIPTION (Continued)

Significance to Mental Health Research: A study of comparative enzymology would naturally include a comparison of enzyme obtained from brain with enzymes obtained from other tissues. From such studies it is hoped to derive information as to the specific differences between brain metabolism and metabolism in other tissues.

This project or project directly stemming from this will continue throughout the fiscal year 1956

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-25
SERIAL NO.

11. BUDGET DATA

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS PROF.	OTHER	TOTAL	MAN YEARS PROF.	OTHER	TOTAL
FY 1955	5,332	1/2	1/4	3/4	1/3	1/4	7/12
FY 1956	17,146	1-1/6	1	2-1/6	1-1/6	1	2-1/6

12. BUDGET ACTIVITY: Research

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Cellular Pharmacology
LABORATORY

3. _____
SECTION

4. Bethesda, Maryland
LOCATION

5. NIMH-26
SERIAL NO.

6. Synthesizing and selecting inert gases labeled with radioactive iodine (I^{131})
PROJECT TITLE

7. Jack Durell, M.D.
PRINCIPAL INVESTIGATOR

8. _____
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Background, Proposed Course and Objective: Labeled trifluoromethyl iodide (F_3CI^{131}) had proved useful in previous studies, using the principles of inert gas exchange to determine the local cerebral blood flow in the cat. However, the gas synthesis employed had proven to be a rather inefficient procedure so an effort was made to find another suitable inert gas.

It was found that labeled methyl iodide (CH_3I^{131}) could easily be synthesized by ionic exchange between reagent CH_3I and labeled potassium iodide (KI^{131}) by refluxing for one hour; however, CH_3I^{131} proved to be rapidly decomposed *in vivo*, thus being unsuitable as a substitute for the fluorinated inert gas in the blood flow experiments. F_3CI^{131} could not be synthesized by ionic exchange, but it was found that if the KI^{131} were oxidized to radioactive elemental iodine, the latter could be incorporated into F_3CI via free radical exchange by incubation for two hours at 220° C. A method employing this principle was developed, resulting in a more efficient synthesis of F_3CI^{131}.

This project was undertaken in the several months prior to the completion of the Laboratory of Cellular Pharmacology while Dr. Durell was loaned to the Section on Cerebral Metabolism. No further work is anticipated on this project except for some refinements in method of synthesis and redesigning of glassware.

NIMH-26
SERIAL NO.

9. PROJECT DESCRIPTION (Continued)

Significance to Mental Health Research: The local blood flow to various brain areas and the factors that influence it are of marked interest to those concerned with nervous system function. The development of a convenient and efficient method for preparing a suitable labeled inert gas was necessary for the furtherance of this work. Since the gas is a cheap, easily prepared radioactive substance, and virtually inert *in vivo*, it should be useful in other respiratory and circulatory studies.

This project is completed and will not be carried over into fiscal year 1956.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-26
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF.	OTHER	TOTAL	PROF.	OTHER	TOTAL
FY 1955	1,940	1/3	-	1/3	1/3	-	1/3
FY 1956	-	-	-	-	-	-	-

12. BUDGET ACTIVITY: Research

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Cellular Pharmacology
LABORATORY

3. _____
SECTION

4. Bethesda, Maryland
LOCATION

5. NIMH-27
SERIAL NO.

6. To establish a section on biosynthesis and chemistry of alkaloids
PROJECT TITLE

7. Dr. G. L. Cantoni
PRINCIPAL INVESTIGATOR

8. To be appointed
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Background, Proposed Course and Objective: Many of the most potent pharmacological agents found in nature are alkaloids. While considerable information as to the organic chemistry and the pharmacology of alkaloids has accumulated, knowledge of the biochemistry of alkaloids and their physiological role in the plants which produce them is very inadequate. It is, for instance, not known whether the formation of alkaloids is the result of synthetic activation or if they accumulate as the end product of catabolic reactions.

Little is known of the relationship between alkaloids and closely related compounds such as the vitamins or coenzymes: compare, for instance, nicotinamide and nicotine, guanine and the xanthines, etc. However, similar metabolic origin is strongly suggested and this in turn indicates the possibility of close physiological relationship between vitamins and alkaloids.

It is well recognized that there is a wide discrepancy between the activity of many alkaloids for plant and for animal tissues. In a large number of cases alkaloids, in minute amounts, exert powerful physiological effects on mammals and it is generally assumed that their effects are concerned with some type of interference with enzymatic catalysis. On the other hand, alkaloids accumulate in plants and they appear to have virtually no effect on the metabolism of plant tissue. This situation is not unlike that found in the field of antibiotics and clearly points to differences

NIMH-27
SERIAL NO.

9. PROJECT DESCRIPTION (Continued)

in the biochemical and enzymatic pattern of mammalian and plant cells even though it does not indicate anything about the exact nature of the differences.

With this general background and in view of the close structural relationship between alkaloids, vitamins and antivitamins and specific drugs, a program of investigations in alkaloid biogenesis in the light of recent advances in enzyme chemistry and intermediary metabolism appears to have excellent prospects of yielding valuable information. It ought to be pointed out that such a project would fit well with the general program of the laboratory, for alkaloid biogenesis undoubtedly relates to amino acids metabolism and to transmethylation mechanisms, and the significance of this problem to comparative biochemistry has been discussed above.

Experimentally a study of alkaloid biogenesis to be successful must be an interdisciplinary affair, involving integration of organic chemistry, plant physiology and enzyme chemistry. Thus it would appear best to view this project or group of projects as one for a section, leaving specific details for later elaboration.

R.P.C. - 2
December 1954 Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-27
SERIAL NO.

11. BUDGET DATA

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL
FY 1955	9,976	1	1	2	--	--	--
FY 1956	21,000	1	2	3	--	--	--

12. BUDGET ACTIVITY: RESEARCH

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956:

None

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH:

None

R.P.C.- 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
Institute

2. Laboratory of Psychology
Laboratory or Branch

3. Section on Aging
Section

4. Bldg. 10
Location

5. NIMH-28
Serial No.

6. Age Changes in the Behavior of the Rat; Spontaneous Activity, Speed of Response, and Learning and Memory.
Project Title

7. James G. Birren
Principal Investigator

8. Eugene Streicher
Other Investigators

9. Project Description:

Project: Age changes in the behavior of the rat.

Objectives: The objective of this project is to describe the primary age changes in the behavior of the rat as a step in the definition and localization of the processes of aging in the nervous system.

Methods Employed: Rats of different ages and sex are placed in activity cages to record spontaneous daily activity. Reaction time to "white noise" and to electric shock are measured in a specially designed cage.

Major Findings: Findings during the past year showed a marked slowing of reaction time in aging rats from about 0.024 sec. in young adult rats to about 0.052 sec. in senescent rats; male rats appeared to be slower in later life than the females. The male rat appears to be less active than the female and to decline more in activity with increasing age than does the female.

Analysis of NIH Program Activities

Project Description Sheet

Project Description:

Significance to Mental Health Research: In order to proceed with an analysis of the bases for age changes in human behavior it is necessary to have a suitable animal which displays analogous changes in the function and structure of the nervous system. The rat in several important respects appears to be a suitable animal, e.g., it shows a marked slowing of response, loss of cortical cells, accumulation of cellular pigments, and is a practical source of tissues and is amenable to laboratory study and rearing.

Proposed Course of Project: Observations will be continued on the age and sex differences in spontaneous activity and in reaction time. The studies will be expanded and the data will be correlated with results of the physiological studies to determine if there is any obvious relation between those animals which show senescent behavior and e.g., accumulation of calcium in the brain, and loss of neurons.

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-28
Serial No.

Budget data for Project: Age Changes in the Behavior of the Rat: Spontaneous Activity, Speed of Response, and learning and Memory.

11. Budget Data

	Estimated Expenditures	Budgeted Positions			Man Years			Patient Days
		Prof.	Other	Total	Prof.	Other	Total	
FY 1955	$8,349	1/3	1	1 1/3	1/3	7/12	11/12	
FY 1956	$8,665	1/3	1	1 1/3	1/3	1	1 1/3	

12. Budget Activity:

Research [X] Administration [ ]

Review & Approval [ ] Technical Assistance [ ]

13. Identify any cooperating units of the Public Health Service, or other organizations, providing funds, facilities, or personnel for this project in either 1955 or 1956: If cooperating unit is within NIH indicate serial No. (s) (Item 10)

14. If this project resembles, complements, or parallels research done elsewhere in the Public Health Service (without interchange of personnel, facilities or funds), identify such research: (By Serial No. (s) if within NIH).

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
Institute

2. Laboratory of Psychology
Laboratory or Branch

3. Section on Aging
Section

4. Bldg. 10
Location

5. NIMH-29
Serial No.

6. Age changes in time-intensity relations in human perception and responses.
Project Title

7. James E. Birren
Principal Investigator

8. None
Principal Investigator

9. Project Description

Project: Age changes in time-intensity relations in human perception and responses.

Objectives: The objective of this project is the understanding of mechanisms of the slowing of perception and responses with aging which occurs in humans and other animals.

Methods Employed: Visual and auditory stimuli are presented for varying time intervals and intensities. Subjects are required to indicate their responses as quickly as possible, and both correct perception and speed of response are analyzed as functions of the stimulus parameters.

Major Findings: An important contribution has been made by these studies in demonstrating the significance of timing in behavior. The slowing of responses in later life appears to be part of a general factor underlying many aspects of behavior including complex processes of thought. In general it has been found that the aged show less change in response speed than young persons when the difficulty of the perceptual task is varied, although an increased variance in responses is found as discrimination becomes more difficult.

Significance to Mental Health Research: The nervous system is becoming a focal point for research on aging not only because of the marked cellular and behavioral changes accompanying age but because of the sensitive position of the nervous system as a pacemaker or antecedent to age changes in other organs and tissues. As a point of departure for investigating the age changes in the function of the nervous system, changes in timing of perception and responses seems most fruitful. This as a means of linking functions of the nervous system to alterations in cellular populations and neuronal physiology.

Continued on next page.

Project Description Sheet

Item 9 continued.

Proposed Course of Project: Work will be expanded the coming year to study the responses of more subjects in testing the hypothesis that there is a restriction in the range of perceptual discrimination with advancing age and that this diminished range of perception is related to neuronal loss. Implications of the restriction in perceptual range for problems of learning and thought will be explored as soon as the fundamental relations have been established and methods are developed.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-29
Serial No.

11. Budget Data:

	Estimated Expenditures	Budget Positions Prof.	Budget Positions Other	Budget Positions Total	Man Years Prof.	Man Years Other	Man Years Total	Patient Days
FY 1955	$6,072	1/3	2/3	1	1/3	1/3	2/3	
FY 1956	$6,500	1/3	2/3	1	1/3	2/3	1	

12. Budget Activity:

Research [X] Administration [ ]

Review & Approval [ ] Technical Assistance [ ]

13. Identify any cooperating units of the Public Health Service, or other organizations, providing funds, facilities, or personnel for this project in either 1955 or 1956: If cooperating unit is within NIH indicate serial No. (s) (Item 10).

14. If this project resembles, complements, or parallels research done elsewhere in the Public Health Service (without interchange of personnel, facilities or funds), identify such research: (By Serial No. (s) if within NIH).

R.P.C. - 3
December 1954

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH-29
Serial No.

16. List Publications Other Than Abstracts From This Project During Calendar Year 1954.

Publications: Birren, James E., Allen, William R. and Landau, H. G. The relation of problem length in simple addition to time required, probability of success, and age. Journal of Gerontology, April 1954, 9, 150-161

Birren, James E. Age changes in mental abilities, Journal of Business, April 1954, 27, 156-163.

17. List Honors and Awards to Personnel Relating to this Project During Calendar Year 1954.

R.P.C. - 1
December 1954

NIMH-30
Serial No.

Analysis of NIH Program Activities

Project Description Sheet

Project Description:

Significance to Mental Health Research: Information is needed to describe the normal changes with age as a basis for studies of the psychopathies of later life and also for investigations of the interdependence of psychological and physiological changes of aging.

Proposed Course of Project: During the coming year attempts will be made to select subjects for intensive two-week studies. Present estimates indicate that about two weeks are required to secure an adequate assessment of an individual. Attention will be given to the reactions of the subject to a battery of measurements as well as to the test findings.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
Institute

2. Laboratory of Psychology
Laboratory or Branch

3. Section on Aging
Section

4. Bldg. 10
Location

5. NIMH-30
Serial No.

6. Age Changes in Mental and Perceptual Abilities and Personality Structure.
Project Title

7. James E. Birren
Principal Investigator

8. Louis Sokoloff and Seymour Perlin
Other Investigators

9. Project Description:

Project: Age changes in mental and perceptual abilities and personality structure.

Objectives: The objective of this project is the description of normal age changes in mental functions and personality as a basis for correlations with physiological variables and psychiatric status.

Methods Employed: Methods are being explored for the assessment of mental abilities and personality in the adult years. Existing psychological tests are being examined for their appropriateness for use in the adult years and modified where necessary and new measures of perceptual speed and motivation are being developed. Results will be correlated with findings from projects in other sections evaluating the same subjects; Louis Sokoloff, Section on Cerebral Metabolism, Age changes in cerebral blood flow and metabolism, and Seymour Perlin, Laboratory of Psychosomatic Investigation, Psychiatric evaluation of the response to stress in the aging.

Major Findings: Efforts this past year have been directed at obtaining the cooperation of suitable normal elderly volunteer subjects.

R.P.C. -2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH -30
Serial No.

11. Budget Data:

	Estimated Expenditures	Budget Positions Prof.	Budget Positions Other	Budget Positions Total	Man Years Prof.	Man Years Other	Man Years Total	Patient Days
FY 1955	$3,038	1/3	1/3	2/3	1/3		1/3	
FY 1956	$4,332	1/3	1/3	2/3	1/3	1/3	2/3	500

12. Budget Activity:

Research [X] Administration [ ]

Review & Approval [ ] Technical Assistance [ ]

13. Identify any cooperating units of the Public Health Service, or other organizations, providing funds, facilities, or personnel for this project in either 1955 or 1956: If cooperating unit is within NIH indicate serial No. (s) (Item 10)

14. If this project resembles, complements, or parallels research done elsewhere in the Public Health Service (without interchange of personnel, facilities or funds), identify such research: (By Serial No. (s) if within NIH).

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
Institute

2. Laboratory of Psychology
Laboratory or Branch

3. Section on Aging
Section

4. Bldg. 10
Location

5. NIMH -31
Serial No.

6. Cytological and Histological Changes in the Nervous System as a Function of Age
Project Title

7. James E. Birren
Principal Investigator

8. Eugene Streicher
Other Investigator

9. Project Description

Project: Cytological and histological changes in the nervous system as a function of age.

Objectives: The objective is to quantitatively determine the changes in the cellular populations of brain neurons and glia, extracellular space and blood vessels as a function of age.

Methods Employed: Rats of different ages are sacrificed under anesthesia and perfused with 10% buffered formalin by means of a cannula placed in the aorta. The brain and lumbar enlargement of the spinal cord are disected out and subsequently sectioned after routine preparation of the tissue. Every third slide is stained with thionine, examined under the microscope, and photographed. Cell counts are made on 16" x 20" enlargements of the photomicrograph, or on screen projections of the photograph.

Major Findings: Preliminary studies are under way to ascertain the proper conditions for suitable fixation and staining.

Significance to Mental Health Research: Quantitative measurements of cellular loss and gliosis in the brain as a function of age will be required for any definitive explanation of aging in the nervous system, for the functional activity of the brain is ultimately related to the integration of its cellular units..

Proposed Course of Project: After cell counts have been completed, other quantitative histological measurements will be undertaken, such as bouton density, nucleic acid content, and various histochemical analyses.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH -31
Serial No.

11. Budget Data:

	Estimated Expenditures	Budgeted Positions			Man Years			Patient Days
		Prof	Other	Total	Prof	Other	Total	
FY 1955	$3,036	1/3	1/3	2/3	1/3	1/3	1/3	0
FY 1956	$4,331	1/3	1/3	2/3	1/3	1/3	2/3	0

12. Budget Activity:

Research [X] Administration [ ]

Review & Approval [ ] Technical Assistance [ ]

13. Identify any cooperating units of the Public Health Service, or other organizations, providing funds, facilities, or personnel for this project in either 1955 or 1956: If cooperating unit is within NIH indicate Serial No(s) (Item 10).

None

14. If this project resembles, complements, or parallels research done elsewhere in the Public Health Service (without interchange of personnel, facilities or funds), identify such research: (By Serial No(s) if within NIH)

None

R.P.C. - 3
December 1954

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH - 31
Serial No.

16. List publications other than abstracts from this project during calendar year 1954:

Birren, James E. and Wall, Patrick D.; Age Changes in Conduction Velocity, Refractory Period, Number of Fibers, Connective Tissue Space, and Blood Vessels in Sciatic Nerve of Rats. Journal of Comparative Neurology. In Press.

17. List honors and awards to personnel relating to this project during calendar year 1954:

None

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
Institute

2. Laboratory of Psychology
Laboratory or Branch

3. Section on Aging
Section

4. Bldg. 10
Location

5. NIMH -32
Serial No.

6. Age Changes in Brain Electrolytes in the Rat.
Project Title

7. Eugene Streicher
Principal Investigator

8. Joel Garbus
Other Investigators

9. Project Description:

Project: Age changes in brain electrolytes in the Rat.

Objectives: The objective is to measure changes in the concentrations of sodium, potassium, calcium, magnesium, phosphate, and chloride in rat brain as a function of age.

Methods Employed: Sodium and potassium are measured by flame photometry, magnesium, calcium, and phosphate by suitable colorimetric methods and chloride by gravimetric analysis.

Major Findings: Work on this project has been directed toward developing suitable micromethods for the colorimetric analysis of calcium and magnesium. A colorimetric method employing the principles of chelation have been adapted to the requirements of the problem. A micromodification has been contrived which is capable of measuring as little as two micrograms of calcium or magnesium with an accuracy of approximately 90-95%.

Appendix - 1
Number [illegible]

Analysis of Mill Program Activities

Project Description Sheet

1. [illegible] 2. [illegible]

3. [illegible] 4. [illegible] 5. [illegible]

6. [illegible]

7. [illegible]

8. [illegible]

9. [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

NIMH-32
Serial No.

Analysis of NIH Program Activities

Project Description Sheet

Project Description:

Significance to Mental Health: The cellular and extracellular concentrations of electrolytes influence most of the basic processes of nervous tissue, such as metabolic rate, synthesis of protoplasm, permeability, and electrical characteristics. Alterations in their levels may be directly or indirectly related to the behaviorial changes that occur with advanced age.

Proposed Course of Project: After the total concentrations of the various electrolytes have been measured, an attempt will be made to ascertain their intracellular distribution and relation to the different protoplasmic constituents.

R.P.C.- 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH -32
Serial No.

11. Budget Data:

	Estimated Expenditures	Budgeted Positions			Man Years			Patient Days
		Prof.	Other	Total	Prof.	Other	Total	
FY 1955	$6,072	1/3	2/3	1	1/3	1/3	2/3	
FY 1956	$6,500	1/3	2/3	1	1/3	2/3	1	

12. Budget Activity:

Research [X] Administration [ ]

Review & Approval [ ] Technical Assistance [ ]

13. Identify any cooperating units of the Public Health Service, or other organizations, providing funds, facilities, or personnel for this project in either 1955 or 1956: If cooperating unit is within NIH indicate serial No. (s) (Item 10)

Not applicable

14. If this project resembles, complements, or parallels research done elsewhere in the Public Health Service (without interchange of personnel, facilities or funds). identify such research: (By Serial No. (s) if within NIH).

Not applicable

R.P.C.-1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
Institute

2. Laboratory of Psychology
Laboratory or Branch

3. Section on Aging:
Section

4. Bldg. 10
Location

5. NIMH-33
Serial No.

6. Metabolism of Nervous Tissue as a Function of Age.
Project Title

7. Eugene Streicher
Principal Investigator

8. Joel Garbus
Other Investigators

9. Project Description:

Project: Metabolism of nervous tissue as a function of age.

Objectives: The objective is to measure alterations in the metabolic characteristics of nervous tissue as a function of age.

Methods Employed: The respiration and glycolytic activity of rat brain homogenates and slices are measured in the Warburg apparatus under a variety of experimental conditions. The activities of a number of enzymes are measured spectrophotometrically or manometrically.

Major Findings: Work has just recently been started on this project and the required apparatus has been assembled and calibrated. Preliminary experiments are now underway to establish the optimum experimental conditions for the respiration of brain homogenates.

Significance to Mental Health Research: The metabolism of neurons provides the energy required for cellular activities and directly supports functional nervous processes. A study of the metabolic potential of excised tissue may indicate whether the functional aspects of aging are related to quantitative or to specific deficiencies in the energy producing systems of the nerve cell.

NIMH -33
Serial No.

Analysis of NIH Program Activities

Project Description Sheet

Project Description:

Proposed Course of Project: After the respiratory and glycolytic capacities of homogenates and slices have been measured under various conditions, other aspects of tissue metabolism will be investigated as a function of age, such as the turnover rates of protoplasmic constituents, the permeability of brain slices to various compounds, and the calorie contribution of various metabolic pathways to the total energy production of the cell.

R.P.C.-2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-33
Serial No.

11. Budget Data

	Estimated Expenditures	Budgeted Positions			Man Years			Patient Days
		Prof.	Other	Total	Prof.	Other	Total	
FY 1955	$6,072	1/3	2/3	1	1/3	1/3	2/3	
FY 1956	$6,500	1/3	2/3	1	1/3	2/3	1	

12. Budget Activity:

Research [X] Administration [ ]

Review & Approval [ ] Technical Assistance [ ]

13. Identify any cooperating units of the Public Health Service, or other organizations, providing funds, facilities, or personnel for this project in either 1955 or 1956: If cooperating unit is within NIH indicate Serial No. (s) (Item 10).

14. If this project resembles, complements, or parallels research done elsewhere in the Public Health Service (without interchange of personnel, facilities or funds), identify such research: (By Serial No.(s) if within NIH).

R.P.C. - 3
December 1954

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH -33
Serial No.

16 List Publications Other Than Abstracts From This Project During Calendar Year 1954:

Publication: Streicher, E. and Gerard, R. W. Phosphate (P^{32}) Exchange in Brain Phospholipids in Vivo and in Vitro Proc. Soc. Exp. Biol. Med. 85: 174, 1954.

17. List Honors and Awards to Personnel Relating to This Project During Calendar Year 1954:

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
Institute

2. Laboratory of Psychology
Laboratory or Branch

3. Section on Animal Behavior
Section

4. Bldg. 10
Location

5. NIMH - 34
Serial No.

6A. Organizing Section on Animal Behavior
Project Title

7A. H. Enger Rosvold
Principal Investigator

8A. Allan F. Mirsky
Other Investigators

9A. Project Description

On August 16, 1954 Dr. H. Enger Rosvold (Psychologist-Experimental) joined the Laboratory of Psychology as Chief of the Section on Animal Behavior. Dr. Allan F. Mirsky (Ass't. Scientist) who had been completing research activities at Yale since coming into the Corps August, 1954, joined the Section at Bethesda October 1st, 1954, Miss Jennie Lea Knight (Artist-Illustrator, Medical) September 7th, 1954 as a technical assistant to help with the handling of animals and the illustration of their behavior. Dr. Maria Szwarcbart (Histopathology Technician) joined the Section October 1st, 1954 to carry out the histological procedures on brains of experimental animals. Miss Knight has been upgraded to Medical Illustrator GS-5 and Dr. Szwarcbart to Histologist-Biologist GS-7 --- both grades more in line with the proven capabilities of these people. Mr. Howard Wolfe joined the project January 2, 1955 as Med. Biol. Tech. GS-4 to assist with the care and training of the animals as well as to assist with histology.

Construction and Equipment. Many meetings have been held with architects and Buildings Management to plan for the permanent facilities of the Section in T-10. The plans have now been finalized and are in the hands of PBS for drawing up specifications for putting the contract out on bid. It is anticipated that the contract will be awarded in January 1955 and the building ready for occupancy summer 1955. Meanwhile equipment and supplies have been assembled in order to carry out activities of the Section which are practicable in the temporary quarters in Building 10. All of the equipment will also be useful when moved to T-10.

Budget Data Sheet for project description 9A begins on next page.

Look for 9B after Budget Data sheet for 9A.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH -34
Serial No.

Budget Data for Project "Organizing Section on Animal Behavior"

11. Budget Data:

	Estimated Expenditures	Budgeted Positions			Man Years			Patient Days
		Prof	Other	Total	Prof	Other	Total	
FY 1955	NIMH NINDB $27,258 Total	1	1-1/3	2-1/3	1	2	3	Nil
FY 1956	NIMH NINDB $3,249 Total	½	0	1/2	½	0	1/2	Nil

12. Budget Activity:

Research [X] Administration [ ]

Review & Approval [ ] Technical Assistance [ ]

13. Identify any cooperating units of the Public Health Service, or other organizations, providing funds, facilities, or personnel for this project in either 1955 or 1956; If cooperating unit is within NIH indicate serial No(s) (Item 10)

Nil.

14. If this project resembles, complements, or parallels research done elsewhere in the Public Health Service (without interchange of personnel, facilities or funds), identify such research: (By Serial No.(s) if within NIH).

Not applicable.

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
Institute

2. Laboratory of Psychology
Laboratory or Branch

3. Section on Animal Behavior
Section

4. Bldg. 10
Location

5. NIMH-35
Serial No.

6B. Completion of Research Activities begun at Yale
Project Title

7B. H. Enger Rosvold
Principal Investigator

8B. Allan F. Mirsky
Other Investigators

9B. Project Description

Dr. Mirsky was posted for duty at Yale University for two months prior to joining the section at Bethesda. There he completed the ongoing observations which he and Dr. Rosvold had been carrying out on humans, monkeys and chimpanzees. He then supervised the shipment of trained monkeys and chimpanzees to Bethesda. These animals have since been housed in Building 14 where we have continued on a modified scale with the aid of Miss Knight and Mr. Wolfe the taming and observation procedures preliminary to actual experimentation. It will not be feasible to begin the detailed observations of these animals until we move into T-10. The studies with human subjects involved a five year follow-up of patients which Dr. Rosvold had been following after prefrontal lobotomy.

On September 22 two chimpanzees suspected of having tuberculosis were subjected to an acute experiment. Dr. Bonnycastle, and her assistant, from Dr. C. N. H. Long's laboratory at Yale joined us to assess in the anesthetized animal adrenal function in response to various excitants. This information which had been obtained on monkeys, dogs, rats, as well as two other chimps and two men was obtained to compare species differences. The brains of these chimps were then exposed and measurements taken to provide information for stereotaxic surgery. Their brains were then taken and are now being prepared for histological sectioning as normal brains. Dr. Olson took the carcasses for autopsy examination to verify the signs of tuberculosis. No positive indication of tuberculosis was evident.

The brains of eleven monkeys and four chimpanzees are being prepared for histological examination to verify the extent of lesions and degeneration consequent upon experimental surgery which had been inflicted on these animals to test changes in behavior. These brains are being prepared in celloidon. Four have now been cut and stained for Nissl and Myelin; the others will be completed in fiscal 1955. Eleven papers are being prepared for publication.

Budget Data Sheet for Project 9B on next sheet.

Look for 9C.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-35
Serial No.

11. Budget data for Project "Completion of Research Activities begun at Yale"
Budget Data

	Estimated Expenditures	Budgeted Positions			Man Years			Patient Days
		Prof	Other	Total	Prof	Other	Total	
FY 1955	NIMH NINDB $7,660 Total	1	1-1/3	2	5/12	5/12	5/6	0
FY 1956	NIMH NINDB None Total	0	0	0	0	0	0	0

12. Budget Activity:

Research /XX/ Administration /__/

Review & Approval /__/ Technical Assistance /__/

13. Identify any cooperating units of the Public Health Service, or other organizations, providing funds, facilities, or personnel for this project in either 1955 or 1956: If cooperating unit is within NIH indicate serial no(s) (item 10)

None

14. If this project resembles, complements, or parallels research done elsewhere in the Public Health Service (without interchange of personnel, facilities or funds), identify such research: (By Serial No.(s) if within NIH).

Not applicable.

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
Institute

2. Laboratory of Psychology
Laboratory or Branch

3. Section on Animal Behavior
Section

4. Bldg. 10
Location

5. NIMH - 36
Serial No.

6C. Assessment of the Effects of Brain Damage on Human Behavior
Project Title

7C. H. Enger Rosvold and Allan F. Mirsky
Principal Investigators

8C. None
Other Investigators

9C. Project Description

Project: By using a Continuous Performance Task already developed and by improving its design assess the effect of brain damage on serial function.

Objectives: The objective is to develop a task which will reliably discriminate subjects with brain damage from normal subjects.

Methods employed: The task already available will be used to test subjects suspected of brain damage as well as those demonstrated to have no brain damage. At the same time improvements in design will be made on the present machine.

Major findings: The major finding of this project during the past year has been that subjects with brain damage can be discriminated from those without brain damage. The work now in progress is to demonstrate with more homogeneous groups differences among the brain damaged.

Significance to Mental Health Research: There is not now available any easily administered objective test which will demonstrate the effect of brain damage on serial function. The test being developed here will do this and thus provide investigators working with neurological and psychiatric patients with a valuable tool for diagnostics and research.

Proposed Course of Project: The principal effort in the rest of this fiscal year will be to set up testing schedules of well-defined groups of subjects and to test these on the present instrument. Thereafter, additional groups will be tested. At the same time the improved instrument will be built.

R.P.C.- 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-36
Serial No.

11. Budget data for Project 9c Assessment of Effects of Brain Damage on Human Behavior

Budget Data:

	Estimated Expenditures		Budget Positions Prof.	Budget Positions Other	Budget Positions Total	Man Years Prof.	Man Years Other	Man Years Total	Patient Days
FY 1955	NIMH NINDB Total	$7,590	1	1	2	5/12	5/12	5/6	As Available
FY 1956	NIMH NINDB Total	$9,748	1	1/2	1 1/2	1	1/2	1 1/2	As Available

12. Budget Activity:

Research [X] Administration [ ]

Review & Approval [ ] Technical Assistance [ ]

13. Identify any cooperating units of the Public Health Service, or other organizations, providing funds, facilities, or personnel for this project in either 1955 or 1956: If cooperating unit is within NIH indicate serial No.(s) (item 10)

Not applicable

14. If this project resembles, complements, or parallels research done elsewhere in the Public Health Service (without interchange of personnel, facilities or funds), identify such research: (By Serial No.(s) if within NIH)

Not applicable

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
Institute

2. Laboratory of Psychology
Laboratory

3. Section on Animal Behavior
Section

4. Bldg. 10
Location

5. NIMH-37
Serial No.

6D. To demonstrate the relationship between brain and behavior in primates.
Project Title

7D. H. Enger Rosvold and Allan F. Mirsky
Principal Investigators

8D. Two professionals to be recruited.
Other Investigators

9D. Project Description

Project: By means of neurosurgical, neurophysiological, endocrinological, and psychological technics to demonstrate the relationship between brain function and behavior.

Objectives: The primary objective is to understand human behavior in terms of the regulating effects which physiological mechanisms, primarily neural mechanisms have on it. The immediate objective is to develop technics for altering the organism (e.g. ablation, electrical stimulation, replacement, deprivation) and for observing these effects on the animal in standard situations (e.g. conditioned fear, intelligence, social behavior, sexual behavior, and other situations to be devised).

Methods Employed: 1. With human subjects: Patients will be tested on a Continuous Performance Task as well as other special instruments to determine the effects on their behavior of brain-injury, epilepsy, feeblemindedness, palsy, psychosis, or neurosis. The results of such tests will be analyzed to determine differences in performance attributable to differences in the type or location of brain disturbance.

2. With monkeys and chimpanzees: These primates will be trained on standard tests involving intellectual and emotional behavior. Then, depending on the specific purpose of the study, parts of their brains will be destroyed, electrically stimulated, or altered in some other way. The animals will then be retested on the same standard instruments to determine the effect of such changes in brain on behavior. Finally, their brains will be sectioned and stained for histological examination to determine the structures critical for the changes in behavior.

Major Findings: The major findings of this project during the past year is that calculated changes in brain do make changes in behavior which can be reliably measured. Specifically it has been possible to demonstrate differential effects of various lesions on intelligence, emotional behavior, and group behavior.

continued on next page

9D. Project description continued from previous page.

Significance to Mental Health Research: One of the fundamental questions with respect to abnormal behavior is the degree to which alterations in brain are responsible for the alterations in behavior. Demonstration of the relationship between brain function and behavior will enable people interested in mental health to specify more precisely the cause and cure of mental ill health.

Proposed course of project: The major part of this fiscal year will be devoted to setting up the necessary animal quarters, instruments, and testing technics. Then a vigorous program will be undertaken to work in several areas simultaneously so that various aspects of the same changes in brain function can be tested at the same time. Although preliminary training can be undertaken in a few animals with the present facilities, most will have to be delayed until we move into T-10.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-37
Serial No.

11. Budget Data: Budget Data for Project "To demonstrate the relationship between brain and behavior"

	Estimated Expenditures	Budgeted Positions			Man Years			Patient Days
		Prof	Other	Total	Prof	Other	Total	
FY 1955	NIMH NINDB Nil Total	0	0	0	0	0	0	0
FY 1956	NIMH NINDB$9,220 * Total	3/4	2/3	1-5/12	3/4	2/3	1-5/12	As Available

*Note: This amount assumes that the cost of building and equiping T-10 has been underwritten elsewhere. The amount shown here is only for salaries, animals and equipment additional to that acquired for organizing the Section.

12. Budget Activity:

Research [X] Administration [ ]

Review & Approval [ ] Technical Assistance [ ]

13. Identify any cooperating units of the Public Health Service, or other organizations, providing funds, facilities, or personnel for this project in either 1955 or 1956: If cooperating unit is within NIH indicate serial no(s) (item 10).

Not applicable.

14. If this project resembles, complements, or parallels research done elsewhere in the Public Health Service (without interchange of personnel, facilities or funds), identify such research: (By Serial No(s) if within NIH)

Not applicable.

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH-37
Serial No.

16. Publications of H. Enger Rosvold and Allan F. Mirsky, Section on Animal Behavior
List Publications other than abstracts from these projects during calendar year 1954.

Papers Presented: Dr. Allan F. Mirsky presented a paper "The Influence of Sex Hormones on Social Behavior in Monkeys" at the annual meeting of the American Psychological Association on September 1, 1954.

Dr. H. Enger Rosvold presented a paper on the Sex Behavior of Laboratory Monkeys to a symposium: Genetic, Psychological, and Hormonal Factors in the Establishment and Maintenance of Patterns of Sexual Behavior in Mammals, held at Amherst, Massachusetts, November 17, 18, 19, 1954.

Papers Published Since Organization of Section in August, 1954

Mirsky, A. F.; Looney, E.; and Rosvold, H. E., Maze retention deficit following electro-convulsive shock independent of feeding schedule. J. Comp. Physiol. Psychol., 1954, 47, 403-405.

Rosvold, H. E. and Peters, R. H., The reliability of the water adaptation of the closed field test for rats. Can. J. Psychol. 1954, 8, 139-146.

Rosvold, H. E. and Freedman, L. Z., Sexual behavior of laboratory monkeys. 30 minute 16 mm Kodachrome Motion Picture, November 1954.

Rosvold, H. E.; Ross, W. D.; and Dorken, H., The Rorschach test as an experimental instrument. J. Projective Technics 1954, 18, 227-232.

Papers Accepted for Publication

Mirsky, Allan F., The influence of sex hormones on social behavior in monkeys. In Press. J. Comp. Physiol. Psychol. 1955, 48.

Peters, R. H.; Rosvold, H. E.; and Mirsky, A. F., The effect of thalamic lesions on delayed response-type test performance in monkeys. In Press. J. Comp. Physiol. Psychol. 1955, 48.

17. List Honors and Awards to personnel relating to this project during calendar year 1954.

None.

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
Institute

2. Laboratory of Psychology
Laboratory or Branch

3. Section on Perception and Learning
Section

4. Bldg. 10
Location

5. NIMH-38(C)
Serial No.

6. Effects of LSD (lysergic acid diethylamide) on visual functions.
Project Title.

7. V. R. Carlson
Principal Investigator

8. Edward Evarts
Other Investigators

9. Project Description

Objectives: LSD is known to produce various temporary distortions in vision when administered to normal human subjects. These distortions have been described for the most part only in general subjective terms, however, and the purpose of this study is to specify the effects of LSD on vision more precisely and quantitatively.

Methods: On one day measurements of a given visual function are made on the subject approximately one-half hour after he has received LSD. On another day the same measurements are made on the same subject without the drug. The drug and non-drug days are alternated with intervals of two to three days between them.

The visual functions being studied are dark adaptation, luminosity functions, visual acuity, and depth perception. In dark adaptation the measurements consist of determining the dimmest white test light the subject can detect after increasing amounts of time in the dark. Luminosity functions are determined in a similar manner, except that colored test lights are used instead of a white light. For these measurements it is necessary to equate the pupil size of the eye in the drug and non-drug conditions, because LSD dilates the pupil and dark adaptation is affected by differences in pupil size. In this study pupil size is equated by dilating the pupil maximally with homatropine in both the drug and non-drug conditions.

Visual acuity is measured by determining the smallest separation between two black parallel bars which the subject can detect at a given distance. Depth perception is measured in two ways. One way is by determining the accuracy with which the subject can judge when two upright rods are equally distant from him at a distance of about twenty feet. The second way is by determining the smallest amount of retinal disparity between two stereoscopic images required to produce a detectable depth effect.

Continued on next page.

Analysis of NIH Program Activities

Project Description Sheet

Methods (continued):

All of these measurements are repeated a number of times, so that the data can be treated by statistical analysis.

Patient Material:

	No.	Average stay
Normal controls, adult males	3	120 days
" " " "	2	60 days

Major Findings: Most of the data collected to date have been on dark adaptation. Neither the collection nor the analysis of this data has been completed, but the following findings may be stated tentatively:

(1) LSD seems to produce a consistent difference throughout the course of dark adaptation. With LSD the subject requires a brighter light in order to be able to detect it than he does without LSD. The difference is about one-fourth log unit on a micromicrolambert luminance scale.

(2) There is a suggestion of a difference in the rate at which dark adaptation takes place, but this finding needs to be verified by further evidence.

Significance to Mental Health Research: This study provides basic data needed to evaluate comparisons between the visual effects produced by LSD and the visual distortions reported by mental patients.

Proposed course: It is intended to complete the present measurements and analyses, and in addition to obtain measurements on size and brightness constancy, autokinetic movement, visual illusions, and sensory conditioning.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-38(C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS PROF.	BUDGETED POSITIONS OTHER	BUDGETED POSITIONS TOTAL	MAN YEARS PROF.	MAN YEARS OTHER	MAN YEARS TOTAL	PATIENT DAYS
FY 1954	$6,072	1/3	1/3	2/3	1/3	1/ 3	2/3	
FY 1955	$4,332	1/3	1/3	2/3	1/3	1/3	2/3	

12: BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM)

Section on Clinical Physiology, NIMH-CI

Mennonite Central Committee
Akron, Pennsylvania

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

Research on LSD by the Section on Clinical Physiology is related but not parallel.

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
Institute

2. Laboratory of Psychology
Laboratory or Branch

3. Perception and learning
Section

4. Bldg. 10
Location

5. NIMH-39
Serial No.

6. Test of the Satiation Theory of Perception
Project Title

7. V. R. Carlson
Principal Investigator

8. None
Other Investigators

9. Project Description:

Objectives: The object of this study is to devise a crucial test of Köhler's Theory of satiation by means of a figural-aftereffect experiment.

Methods: The subject is first satiated by viewing a "satiation" stimulus pattern steadily for about one minute. Then he looks at a test stimulus; and any distortion in the perception of the test stimulus which is induced by the previous satiation is measured as the "figural-aftereffect."

In this study the experimental satiating stimulus is a moving field of curved lines, viewed by the subject with stationary monocular fixation. The control stimulus is a stationary field of curved lines. In both cases the test stimulus is a single, stationary, straight line. Under these conditions Köhler's theory would predict a figural-aftereffect in the control condition but not in the experimental condition, whereas a theory such as that of Hebb could account for figural-aftereffects in both conditions.

The most important aspect of the problem is to achieve stationary fixation on the part of the subject. The attempt here will be to train the subject and monitor his eyemovements by means of electrical recording.

Analysis of NIH Program Activities

Project Description Sheet

Major Findings: At present the necessary apparatus is being designed and constructed.

Significance to Mental Health Research: Two important psychological theories of normal perception have been promulgated in recent years, that of Köhler and that of Hebb. In many respects these two theories are alternative rather than complementary, and this experiment provides an important source of evidence for deciding between the two. In order to understand fully the distortions in perception which are found in mentally deranged patients it is necessary to have a sound theory of the normal processes of perception.

Proposed Course: The experiment will be performed with a sufficient number of subjects for the results to be statistically reliable. Then, depending upon the findings, certain additional, related experiments may be necessary in order to develop a clear interpretation in terms of perceptual theory.

R.P.C. - 2

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-39
Serial No.

11. Budget Data

	Estimated Expenditures	Budgeted Positions			Man Years			Patient Days
		Prof.	Other	Total	Prof.	Other	Total	
1955	$3,036	1/3	0	1/3	1/3	0	1/3	
1956	$2,166	1/3		1/3	1/3		1/3	

12. Budget Activity:

Research [X] Administration [ ]

Review & Approval [ ] Technical Assistance [ ]

13. Identify any cooperating units of the Public Health Service, or other organizations, providing funds, facilities, or personnel for this project in either 1955 or 1956: If cooperating unit is within NIH indicate serial No.(s) (Item 10)

14. If this project resembles, complements, or parallels research done elsewhere in the Public Health Service (without interchange of personnel, facilities or funds), identify such research: (By Serial No. (s) if within NIH).

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
Institute

2. Laboratory of Psychology
Laboratory or Branch

3. Perception and learning
Section

4. Bldg. 10
Location

5. NIMH-40
Serial No.

6. Electrical Recording of eyemovements
Project Title

7. V. R. Carlson
Principal Investigator

8. None
Other Investigators

9. Project Description:

Objectives: The aim of this study is to develop a technically adequate means of recording eyemovements and eye position electrically.

Methods: A corneo-retinal potential of approximately 25 to 500 microvolts is set up by an eyemovement, the exact value depending principally upon the magnitude of the eyemovement. This potential is picked up by electrodes placed on both sides of the eye, amplified, and led to a recording unit. The recorded values are calibrated with reference to some zero point in the visual field, and from the calibration one can determine where the eye was directed at a given time.

Information as to the specific items of equipment needed is gained by studying technical reports on the recording of small d-c potentials and by contacting other investigators who have worked on the problem of recording eyemovements.

Major Findings: The following main items of equipment have been decided upon as the most reasonable to try out: Adjustable chair, head and chin rests, input balancing circuits, d-c chopper-type amplifiers, oscilloscope and camera, oscillograph pen recorder, and voltage calibrators. Most of these items have been obtained.

Analysis of NIH Program Activities

Project Description Sheet

Significance to Mental Health Research: Eyemovement recording is potentially a valuable tool in measuring perceptual variables such as absolute and difference thresholds, discriminations, and complex patternings of perceptual response. Research in perception as it relates to personality maladjustment and mental disorder is concerned with the interaction between the individual's more or less unconscious motivations and his perceptions. Hence in many experimental situations it is desirable to be able to utilize a perceptual response which is not primarily determined by the subject's immediate conscious processes. Eyemovement recording may provide a feasible means of obtaining an indication of what the subject perceives, relatively uninfluenced by his immediate conscious motivations.

Proposed Course: The problem breaks down logically and practically into three stages:

(1) Work out the technical apparatus problems. Progress is currently in this stage. Most of the necessary items of equipment have been obtained, and it remains to integrate them into a functional system.

(2) Work out the methodology for measuring psychological variables by means of eyemovement recording.

(3) Apply the methodology to specific problems in the following areas: basic visual processes, perceptual learning, and perception-personality theory.

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-40
Serial No.

11. Budget Data

	Estimated Expenditures	Budgeted Positions Prof.	Budgeted Positions Other	Budgeted Positions Total	Man Years Prof.	Man Years Other	Man Years Total	Patient Days
FY 1955	$3,036	2/3	0	2/3	1/3	0	1/3	
FY 1956	$4,332	2/3		2/3	2/3		2/3	

12. Budget Activity:

Research [X] Administration [ ]

Review & Approval [ ] Technical Assistance [ ]

13. Identify any cooperating units of the Public Health Service, or other organizations, providing funds, facilities, or personnel for this project in either 1955 or 1956: If cooperating unit is within NIH indicate serial No.(s) (Item 10)

14. If this project resembles, complements, or parallels research done elsewhere in the Public Health Service (without interchange of personnel, facilities or funds), identify such research: (By Serial No. (s) if within NIH).

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Psychology
LABORATORY

3. Section on Perception and Learning
SECTION

4. --
LOCATION

5. NIMH-41
SERIAL NO.

6. Discrimination Learning in Normal Humans
PROJECT TITLE

7. Donald S. Blough
PRINCIPAL INVESTIGATOR

8. None
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Objectives: To clarify the processes by which a person comes to differentiate consistently among the various stimuli in his environment.

Methods: Stimulus patterns are presented in rapid succession to the subject, who makes one of two simple responses to indicate the presence or absence of a critical stimulus factor. Other methods of stimulus presentation will be studied; tactual stimuli may be used. The subject's differentiation of the stimuli will be related to the history of exposure to the stimuli, to stimulus complexity, and to the presence or absence of verbal identification of stimulus patterns.

Major Findings: The project is just beginning; no data have been collected.

Significance to Mental Health Research: The organization of perceptions is one of the primary functions that make it possible for a person to behave consistently with respect to his environment; some behavior disorders seem to result from a breakdown of this function. Some recent research contains the implicit assumption that stimuli are "given," other research assumes that they are learned, but does not say how. The present project is directed at clearing up this problem.

Proposed Course of Project: The development of efficient methods for analyzing the course of discrimination learning will be of primary interest. Means for analyzing and controlling the roles of verbalization and attention will be considered. As methods are developed, the research will aim at general formulations for processes of discrimination learning.

R. P. C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-41
SERIAL NO.

11. BUDGET DATA:

(project begun 1/11/54)	ESTIMATED EXPENDITURES	BUDGETED POSITIONS PROF.	BUDGETED POSITIONS OTHER	BUDGETED POSITIONS TOTAL	MAN YEARS PROF.	MAN YEARS OTHER	MAN YEARS TOTAL	PATIENT DAYS
FY 1955	$3,036	1/3	0	1/3	1/3	0	1/3	60
FY 1956	$2,166	1/3	0	1/3	1/3	0	1/3	200

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S)(ITEM)

No cooperating unit (unless subjects are shared with others)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

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Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Psychology
LABORATORY

3. Section on Perception and Learning
SECTION

4. --
LOCATION

5. NIMH-42
SERIAL NO.

6. Visual Discriminative Processes in the Pigeon
PROJECT TITLE:

7. Donald S. Blough
PRINCIPAL INVESTIGATOR

8. None
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Objectives: To develop efficient methods for studying the vision of pigeons, using behavioral techniques; to acquire certain basic information on the vision of this bird (e.g. - absolute thresholds, extent of color vision); with this background, to identify basic mechanisms of discrimination learning.

Methods: Recently devised procedures and automatic apparatus will be used. These methods are at present capable of yielding continuous threshold measures from a freely-behaving bird; they will be further developed and their applications generalized.

Major Findings: No data have as yet been collected, as the apparatus has not yet been set up. Previous research by the principal investigator using the present methods showed dark adaptation in the pigeon to be similar to that in the human, with variations appropriate to differences in retinal structure.

Significance to the Mental Health Program: With respect to the structure of its eye and its dependence on vision, the pigeon is much closer to man than are many commoner experimental animals - the rat, for example. The pigeon is also an ideal experimental animal in other respects. The project is one of basic research, aimed at contributions to the understanding of vision and discrimination - areas which have very great significance for most human activities.

Proposed Course of Project: During the next year, most effort will go into the development of methods and of basic information on sensory processes. Working on this background, studies of discrimination learning will be undertaken using such analytical tools as drugs, variations in reward factors, and changes in motivational and conflict situations.

R.P.C. - 2
December 1954

Analysis of NIH Program Acitivities

Budget Data Sheet

10. NIMH-42
SERIAL NO.

11. BUDGET DATA:

(project begun 1/11/54)	ESTIMATED EXPENDITURES	BUDGETED POSITIONS PROF.	BUDGETED POSITIONS OTHER	BUDGETED POSITIONS TOTAL	MAN YEARS PROF.	MAN YEARS OTHER	MAN YEARS TOTAL	PATIENT DAYS
FY 1955	$6,073	1/3	1/3	2/3	1/3	1/3	2/3	0
FY 1956	$4,335	1/3	1/3	2/3	1/3	1/3	2/3	0

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO.(S)(ITEM)

No cooperating unit.

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

In the use of drugs for the study of psychological processes, this work will complement work with humans done in the Clinical Investigations Branch, NIMH (Serial No.).

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. NIMH
INSTITUTE

2. NIMH Addiction Research Center
LABORATORY OR BRANCH

3. Clinical Investigations
SECTION

4. USPHS Hospital, Lex, Ky.
LOCATION

5. NIMH-43(C)
SERIAL NO.

6. Addictive liability of new analgesic drugs
PROJECT TITLE

7. Harris Isbell
PRINCIPAL INVESTIGATOR(S)

8. H. F. Fraser and R. E. Belleville
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Project: Addictive liabilities of new analgesic drugs.

Objectives: To determine the addicting properties of new pain relieving drugs as they are developed. This is a technological program carried out in collaboration with the Drug Addiction Committee of the National Research Council and is designed to prevent uncontrolled use of potentially addicting drugs.

Methods Employed: Drugs are referred to the Addiction Research Center by the Drug Addiction Committee of the National Research Council. Animal pharmacology, including acute and chronic toxicity, is done elsewhere. The NIMH Addiction Research Center, using former addict volunteers determines (1) the psychological and physiological effects of single doses of the new drugs; (2) whether the new drug will relieve or suppress the symptoms which follow discontinuation of morphine in strongly addicted patients; (3) in some cases, determines whether patients who are not receiving morphine can be addicted to the new drug.

Patient Material:		No.	Average stay (days)
Admissions:	Adult males	14	116
Outpatient:	No. of patients	30	
	No. of visits	204	

(Note: This patient material is not chargeable to the Clinical Center)

9. (Cont.)

Major Findings: The following drugs were shown to have addictive properties: dihydrohydroxymorphinone, L-2,N-dimethyl-3-hydroxy-morphinan, 4-4-diphenyl-6-dimethylamino-hexanone-3, and a 1-10 mixture of Nalorphine-morphine. The following drugs had no addictive properties: Myristyl ester of benzylmorphine, D-2,N-dimethyl-3-hydroxymorphinan, B dl methadol, L-3-methyl ether of N-allyl-morphinan, L-3-acetoxy-N-allyl-morphinan, L-3-hydroxy-N-propargyl morphinan, chlorpromazine, and narcotine.

Significance to Mental Health Research: Reports rendered to the Committee on Drug Addiction and Narcotics form basis for recommendation to place or not to place new drug under the controls of the Federal Narcotic Laws, thus minimizing addiction to new substances. Also hope to find a nonaddicting, pain-relieving drug, thus further contributing to prevention of addiction. Psychological effects and mechanisms of action of these new drugs are frequently of great theoretical interest in the field of mental health.

Proposed Course of Project: Since this is a technological project operating for protection of the public, it will be continued. Drugs tested will be those recommended by the National Research Council.

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-43(C)
SERIAL NO.

11.
BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAY YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$23,057.95	2/3	3-1/3	4	2/3	3-1/3	4	1622*
FY 1956	$27,714.68	1	3-1/3	4-1/3	1	3-1/3	4-1/3	1700*

* This patient material is not chargeable to Clinical Center.

12.
BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13.
IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956. IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

Office of Naval Research, Department of Defense, provided $32,325 under 75 - 17 x 4888(03) Naval Working Fund, Allotment 5-4801, Project 98111 to carry on investigations designed to find a synthetic substitute for codeine. This fund provides salaries for 7 subprofessional personnel, working 7 man years. NIMH Addiction Research Center provides professional guidance amounting to 2/3 man years and administrative services amounting to 2/3 man years.

14.
IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

Complements activity of
1. Laboratory of chemistry, NIAMD
2. Section on analgesics, NIAMD

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH-43(C)
SERIAL NO.

16. LIST PUBLICATIONS OTHER THAN ABSTRACTS FROM THIS PROJECT DURING CALENDAR YEAR 1954:

1. Fraser, H. F., Nash, T. L., Van Horn, G. D., and Isbell, H.: Use of miotic effects in evaluating analgesic drugs in man. Arch. Internat. de Pharmacodyn. et de Therap. 98: (4) 443-45 (Aug.) 1954.

17. LIST HONORS AND AWARDS TO PERSONNEL RELATING TO THIS PROJECT DURING CALENDER YEAR 1954:

None

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. NIMH
INSTITUTE

2. NIMH Addiction Research Center
LABORATORY OR BRANCH

3. Clinical Investigation
SECTION

4. USPHS Hospital, Lex, Ky
LOCATION

5. NIMH-44(C)
SERIAL NO.

6. Studies of acute and chronic intoxications with drugs other than alcohol, barbiturates and analgesics
PROJECT TITLE

7. Harris Isbell
PRINCIPAL INVESTIGATOR(S)

8. Harris E. Hill, Carl F. Essig, Harold G. Flanary
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Project: Studies of acute and chronic intoxication with drugs other than alcohol, barbiturates and analgesics.

Objectives: To determine the characteristics and pathologic physiology of acute and chronic intoxications with drugs outside the alcohol, barbiturate and opiate classes. The drugs studied are of importance in that they are either (1) abused by opiate addicts or (2) are of special interest because of the induction of profound psychological effects. Examples of such agents are cocaine, the sympathomimetic amines (benzedrine, dexedrine), the cannabinol (marihuana) group, mescaline (peyote), and the diethylamide of lysergic acid.

Methods Employed: Appropriate doses of the drugs are administered acutely and chronically to former morphine addict volunteers. Physiological, psychological, biochemical and clinical measurements are made before, during and after the intoxication.

Patient Material:		NO.	Average stay (Days)
Admissions:	Adult Males	15	147
Outpatients:	No. of patients	30	
	No. of visits	457	

(NOTE: This patient material not chargeable to Clinical Center).

9. (Cont.)

Major Findings: Work in this project during the calendar year has been confined almost entirely to the diethylamide of lysergic acid (LSD). Careful clinical delineation of the entire symptomatology of this intoxication showed only a superficial resemblance to schizophrenia; definite quantitative dose-effect responses were found for both mental and physiological changes induced by LSD; tolerance to LSD develops after only 2-3 days of chronic intoxication; this tolerance is lost just as rapidly following discontinuation of LSD; LSD induces a definite change in the pattern of the Minnesota Multiphasic Personality Inventory.

Significance to Mental Health Research: Since all the drugs in this class produce striking changes in function in the central nervous system, they are of great theoretical interest in psychiatry. Intoxication with LSD has been termed experimental "schizophrenia" but our study reveals only a superficial resemblance. Such drugs are, however, important tools since they provide a means of safely inducing an "artificial" psychosis, which can be studied and manipulated in human and animal subjects.

Proposed Course of Project: This project will be continued with emphasis shifting from LSD to sympathomimetic amines and cannabinols.

Analysis of NIH Program Activities
Budget Data Sheet

10. NIMH-44(C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$22,895.12	1-1/3	2-2/3	4	1-1/3	2-2/3	4	2200*
FY 1956	$26,429.34	1-2/3	2-2/3	4-1/3	1-2/3	2-2/3	4-1/3	2200

* Note: These patient days not chargeable to Clinical Center.

12. BUDGET ACTIVITY:

RESEARCH [x] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956. IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

None

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

Complements activities of Clinical Physiology Section, Clinical Investigations, NIMH

R. P. C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. NIMH
INSTITUTE

2. NIMH Addiction Research Center
LABORATORY OR BRANCH

3. Clinical Investigation
SECTION

4. USPHS Hospital, Lex, Ky
LOCATION

5. NIMH-45(C)
SERIAL NO.

6. Chronic intoxication with barbiturates and/or alcohol.
PROJECT TITLE

7. H. F. Fraser
PRINCIPAL INVESTIGATOR(S)

8. H. Isbell, R. E. Belleville, A. J. Eisenman, A. Wikler
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Project: Studies of chronic intoxication with barbiturates and/or alcohol.

Objectives: To delineate clinical pictures of intoxication with and withdrawal from barbiturates and alcohol; to determine minimal limits of dosage and time of intoxication necessary for development of serious withdrawal symptoms; to study pathologic physiology of these conditions in man and animals; to develop more effective methods of treatment and prevention.

Methods Employed: Former addict volunteers are chronically intoxicated with alcohol or barbiturates which are finally withdrawn abruptly; physiological, psychological, biochemical, and laboratory observations are made during both phases; various methods of withdrawal (discontinuing drugs) are studied; animals are chronically intoxicated and subjected to withdrawal.

Patient Material:	No.	Average stay (days)
Admissions: Adult males	10	113
Outpatients: None		

(Note. This patient material is not chargeable to Clinical Center.)

9. (Cont.)

Major Findings: During the preceeding calendar year it was found that serious symptoms follow withdrawal of barbiturates after chronic intoxication with 0.6 gm. of these drugs daily for 42 days; during the current year no serious symptoms occurred following withdrawal of barbiturates from 4 patients who had been receiving 0.4 gm. of these drugs daily. Analysis of electroencephalograms obtained in previous studies revealed a characteristic sequence of changes during chronic intoxication with and withdrawal from alcohol. Analysis of EEGs obtained during an experiment in which alcohol was substituted for barbiturates in chronically intoxicated patients showed partial suppression of the paroxysmal activity which follows abrupt withdrawal of barbiturates. Preliminary experiments indicate that it may be possible to produce alcoholic delirium tremens in dogs.

Significance to Mental Health Research: Alcoholism is now a major public health problem so that research in this field, which is relatively unexplored from point of view of neurophysiology, is of great importance. Barbiturate intoxication is a lesser but definitely important problem. Studies carried out show that these two intoxications are physiologically related. Quantitative information on dose and time factors in these two intoxications is badly needed.

Proposed Course of Project: Assessment of the dose and time factors in barbiturate intoxication will be continued. New methods of treatment will be explored. The neuropharmacological program, using animals, will be enlarged.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-45(C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$28,815.99	1-2/3	2-2/3	4-1/3	1-2/3	2-2/3	4-1/3	1125*
FY 1956	$23,460.34	1	2-2/3	3-2/3	1	2-2/3	3-2/3	1200*

* This patient material is not chargeable to the Clinical Center.

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956. IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

None

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

None

R.P.C. - 3
December 1954

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH-45 (C)
SERIAL NO.

16. LIST PUBLICATIONS OTHER THAN ABSTRACTS FROM THIS PROJECT DURING CALENDAR YEAR 1954:

1. Fraser, H. F., Isbell, H., Eisenman, A. J., Wikler, A., and Pescor, F. T.: Chronic barbiturate intoxication, further studies. Arch. Int. Med. 94: 34-41 (July) 1954.

2. Fraser, H. F. and Isbell, H.: Abstinence syndrome in dogs after chronic barbiturate medication. Pharmacol. and Exper. Therap. 112: 261-67 (Nov.) 1954.

3. Isbell, H., Fraser, H. F., Wikler, A., Belleville, R. E., and Eisenman, A. J.: An experimental study of the etiology of "rum fits" and delirium tremens. Quart. Studies on Alcohol. (In press)

4. Kornetsky, C. H.: Relationship between Rorschach determinants and psychosis during barbiturate withdrawal. Arch. Neurol. and Psychiat. 72: 452-54 (Oct.) 1954.

5. Wikler, A., Fraser, H. F., Isbell, H., and Pescor, F. T.: Electroencephalograms during cycles of addiction to barbiturates. Electroencephol. and Clin. Neurophysiol. (In press)

17. LIST HONORS AND AWARDS TO PERSONNEL RELATING TO THIS PROJECT DURING CALENDAR YEAR 1954:

Medical Director Harris Isbell
Participated in Symposium on Alcoholism, Alcoholism Research Foundation, University of Toronto, Toronto, Canada, August 9-12, 1954.

Participated in Joint Meeting of the Subcommittee on Alcoholism, Mental Health Section, and Committee on Alcohol and Addicting Drugs Section, World Health Organization, Geneva, Switzerland, September 27 - October 2, 1954.

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. NIMH
INSTITUTE

2. NIMH Addiction Research Center
LABORATORY OR BRANCH

3. Clinical Investigations
SECTION

4. USPHS Hospital, Lexington, Ky
LOCATION (IF OTHER THAN BETHESDA)

5. NIMH-46 (C)
SERIAL NO.

6. Biochemistry of addiction
PROJECT TITLE

7. Anna J. Eisenman
PRINCIPAL INVESTIGATOR (S)

8. H. F. Fraser
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Project: Biochemistry of addiction

Objectives: To determine the changes in chemistry of body as a whole which result from the acute and chronic administration of drugs to study the effects of drugs on the chemical activity of cells and cell particles; to determine the rate, means of destruction, and route of excretion of drugs.

Methods Employed: Are standard methods of clinical biochemistry, cellular enzymology and chemical pharmacology. Measurements of concentration of constituents of body fluid (blood, urine, etc.) are made before, during and after acute or chronic administration of drugs; the effects of drugs on the respiration of cells, cell particles and isolated enzymes systems are determined using tissues from normal, and acutely or chronically intoxicated animals; studies are conducted on the ways of destruction and excretion of various drugs.

Patient Material:

	No.	Average stay days
Admissions: Adult males	7	141
Outpatients: None		

9. (Cont.)

Major Findings: During the year major emphasis was placed on the clinical endocrinology of addiction. In prior years, it had been shown that morphine depresses the excretion of 17-ketosteroids and that withdrawal of morphine caused a sharp rise in 17-ketosteroid excretion. This effect could be explained on the basis of depression of the adrenal glands, the sex glands, or both, mediated either directly or indirectly by depression of the anterior pituitary. During the current year a method for determination of the steroidal hormones derived only from the adrenal gland was developed; application of this method showed depression in the level of excretion of these hormones during acute and chronic intoxication with morphine, thus implicating the adrenal gland. The excretion of gonadotropic hormone is also depressed, implicating the anterior pituitary gland. Pituitary depression is, however, specific and not general since no evidence of thyroid depression was found.

Significance to Mental Health Research: The studies on clinical endocrinology of addiction explain the decrease in sexual drive noted during morphine addiction; this decreased libido is believed to have great importance in the psychogenesis of addiction.

Proposed Course of Project: During the coming year it is hoped that the results obtained previously can be confirmed in a sufficient number of patients to permit statistical analysis of the endocrinological experiments; emphasis will then be shifted to tests of pituitary function in human subjects and to animals in hope of further elucidating the depressant effects of morphine on the pituitary. There will also be a gradual shift from the field of endocrinology to the field of drug metabolism.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-46 (C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$24,283.67	1	2-2/3	3-2/3	1	2-2/3	3-2/3	990
FY 1956	$24,715.99	1	2-2/3	3-2/3	1	2-2/3	3-2/3	1000

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956. IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

1. N.C.I., Dr. Roy Hertz, (gonadotropin assays).

2. Worcester Foundation for Experimental Biology, Worcester, Mass.
Dr. Ralph Dorfman, ("complete" steroidal analyses).

3. Yale University, Dr. Evelyn Man, (serum iodine determinations).

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH CONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

None

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. NIMH
INSTITUTE

2. NIMH Addiction Research Center
LABORATORY OR BRANCH

3. Experimental Neuropsychiatry
SECTION

4. USPHS Hosp, Lex, Ky.
LOCATION

5. NIMH-47 (C)
SERIAL NO.

6. Psychological studies of addiction.
PROJECT TITLE

7. Harris E. Hill
PRINCIPAL INVESTIGATOR(S)

8. R. E. Belleville, A. Wikler, Carl F. Essig, Harold G. Flanary
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Project: Psychological studies of addiction.

Objectives: To determine the psychological changes associated with addiction; to measure the changes in mental and emotional function induced by acute and chronic intoxication with addicting drugs; to elucidate the mechanisms underlying relief of pain by analgesic drugs.

Methods Employed: Standard methods of clinical and experimental psychology are adapted to the objectives determined above. Clinical methods used include measurements of reaction time, sensory perception, standard tests such as the Wechsler-Bellevue Psychometric test, the Minnesota Multiphasic Personality Inventory, and the Rorschach. Animal methods used include development of conditioned reflexes, experimental neuroses, etc. These methods are applied before, during, and after acute and chronic intoxications with drugs.

Patient Material:		No.	Average stay (days)
Admissions:	None		
Outpatients:	No. of patients	66	
	No. of visits	112	

9. (Cont.)

Major Findings: The effects of morphine and pentobarbital on visual hand-reaction time varied in situations of high and low motivation of the subjects, the shortest reaction times being found after pentobarbital under conditions of high motivation, and the longest after pentobarbital under conditions of low motivation. Previously, it was shown that morphine decreased tone-conditioned inhibitions of feeding response in rats in anticipation of painful electric shock and that pentobarbital increased the inhibition. Extension of these studies has shown the intensity and frequency of the tone, the intensity and duration of the shock, and the degree of inhibition to be important factors.

Significance to Mental Health Research: Psychological studies are basic to the understanding of addiction. The studies on the changes in the effect of drugs under conditions of varying motivation shed light on why drugs may be attractive to different persons, and to different persons in different places and times. Work with rats confirms human experiments previously carried out and suggests that analgesics act by decreasing the anxiety attendant on anticipation of pain. It is hoped that the work with rats will provide a more efficient screening technique for assessment of the analgesic potency of new drugs than has heretofore been available.

Proposed Course of Project: The project will be continued during the coming year. It is hoped that the experiments on drug effects on conditioned inhibition of feeding responses in rats can be completed, and attention turned to effects on motivations other than hunger. Emphasis in human work will shift to attempts to condition and extinguish the abstinence syndrome.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-47 (C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$19,892.09	1-1/3	2	3-1/3	1-1/3	2	3-1/3	0
FY 1956	$20,766.34	1-1/3	2	3-1/3	1-1/3	2	3-1/3	1000

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956. IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

None

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

None

R.P.C. - 3
December 1954

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH-47 (C)
SERIAL NO.

16. LIST PUBLICATIONS OTHER THAN ABSTRACTS FROM THIS PROJECT DURING CALENDAR YEAR 1954:

1. Hill, H. E., Belleville, R. E., and Wikler, A.: Anxiety reduction as a measure of the analgesic potency of drugs. Science 120: 153 (July 23) 1954.

2. Hill, H. E., Belleville, R. E., and Wikler, A.: Reduction of pain-conditioned anxiety by analgesic doses of morphine. Proc. Soc. Exper. Biol. and Med. 86: 881-84 (Aug.-Sept.) 1954.

3. Hill, H. E., Belleville, R. E., and Glaser, R.: An application of the Minnesota Multiphasic Personality Inventory to the narcotic addict. Psychiat. Quart. (In press)

17. LIST HONORS AND AWARDS TO PERSONNEL RELATING TO THIS PROJECT DURING CALENDAR YEAR 1954:

None

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. NIMH
INSTITUTE

2. NIMH Addiction Research Center
LABORATORY OR BRANCH

3. Experimental Neuropsychiatry
SECTION

4. USPHS Hospital, Lex, Ky
LOCATION

5. NIMH-48 (C)
SERIAL NO.

6. Neurophysiology and neuropharmacology of addiction
PROJECT TITLE

7. Abraham Wikler
PRINCIPAL INVESTIGATOR(S)

8. Carl F. Essig, Harold G. Flanary
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Project: Neurophysiology and neuropharmacology of addiction.

Objectives: To determine the effects of acute and chronic intoxication with addicting drugs on the functioning of the central nervous system.

Methods Employed: These are the standard techniques of neurophysiology, conditioned reflexology, electroencephalography, and neurology. The activity of the central nervous system is explored by operating on animals, removing portions of the central nervous system, interrupting the continuity of portions of the nervous system, implanting electrodes in the brain, etc. Patients with neurological lesions are also studied and electroencephalograms taken in neurological cases and in normal volunteers. Mechanical or electrical recording of responses to stimuli are obtained before, during, and after acute and chronic drug intoxication.

Major Findings: Addiction to meperidine could not be produced in normal or chronic spinal dogs. The development of physical dependence on morphine was completely prevented in intact and chronic spinal dogs by administration of Nalorphine every three hours. Administration of large amounts of barbiturates to cats produced variable

9. (Cont.)

changes in the thresholds for induction of convulsions by electro-stimulation of the thalamic intralaminar nuclei. The patterns of the electroencephalographic and clinical "arousal" responses during morphine and pentobarbital analgesia in dogs differed markedly. Preliminary experiments suggest that alcoholic delirium tremens can be produced experimentally in dogs.

Significance to Mental Health Research: Such investigations of the acute and chronic effects of drugs on the functioning of the central nervous system are absolutely essential to complete understanding of the psychiatry of addictions. Work with meperidine addiction in dogs, unfortunately, shows that human drug testing is still necessary because of the differences in responses to these drugs in different species.

Proposed Course of Project: The project will be continued along the same lines followed in the past. Emphasis will gradually shift to the neurophysiology of intoxication with barbiturates, alcohol, and diethylamide of lysergic acid.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-48 (C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$19,955.18	1	1-2/3	2-2/3	1	1-2/3	2-2/3	0
FY 1956	$19,363.02	1	1-2/3	2-2/3	1	1-2/3	2-2/3	300*

* This patient material not chargeable to Clinical Center.

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956. IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

None

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

None

R.P.C. - 3
December 1954

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH-48 (C)
SERIAL NO.

16. LIST PUBLICATIONS OTHER THAN ABSTRACTS FROM THIS PROJECT DURING CALENDAR YEAR 1954:

1. Wikler, A. and Rayport, M.: Lower limb reflexes of a "Chronic spinal" man in cycles of morphine and methadone addiction. Arch. Neurol. & Psychiat. 71: 160-170 (Feb.) 1954.

2. Wikler, A. and Pescor, F. T.: Clinical and electroencephalographic effects of drugs on man and dog. Trans. Am. Neurol. Assn. (In press)

3. Wikler, A.: Clinical and electroencephalographic effects of morphine, n-allylnormorphine and mescaline in man. J. Nervous & Mental Dis. (In press)

4. Wikler, A.: Drug Addiction. Chapter in "Clinical Neurology," (3 vols.), Edited by A. B. Baker. Paul Hoeber and Co. (In press)

17. LIST HONORS AND AWARDS TO PERSONNEL RELATING TO THIS PROJECT DURING CALENDAR YEAR 1954:

Medical Director A. Wikler
Invited to address Clinical Congress, Connecticut State Medical Society, New Haven, Conn., on "Diagnosis and treatment of opiate and barbiturate addictions," Sept. 16, 1954.

Invited to address Kentucky Psychiatric Association on "Experimental Chronic Alcoholic Intoxication," Louisville, Kentucky, Sept. 22, 1954.

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. Mental Health
INSTITUTE

2. Laboratory of Socio-environmental Studies
LABORATORY OR BRANCH

3. Social Developmental and Family Studies
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. NIMH-49
SERIAL NO

6. Adaptive Behavior of Families to the Hospitalization of the Father for Mental Illness
PROJECT TITLE

7. John A. Clausen and Marian Radke Yarrow
PRINCIPAL INVESTIGATOR(S)

8. Leila C. Deasy and Charlotte G. Schwartz
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: (1) To determine how the wife attempts to understand the meaning of her husband's illness, and what processes she goes through in an attempt to handle the meaning of the mentally ill behavior. (2) To study the relation between the disruption of the family by the development of mental illness, and the wife's behavior in attempting to maintain the family unit. (3) To analyze the wife's involvement with and attempts to influence her husband and the hospital staff during the treatment of the illness. (4) To analyze the effects of the illness upon the wife's orientation toward and communication with other persons. (5) To analyze the wife's attempts to plan for the future, her time perspective of the illness, her image of her husband, her anticipations or preoccupations concerning the post-treatment situation.

Methods Employed: The data are obtained through a series of interviews with the wives of the patients from the time of the husband's admission until his discharge or until he has been hospitalized continuously for one year. The population studied is comprised of the families of married white male patients who are first admissions to a mental hospital and who fall in the age range of 20 to 60 years, in diagnostic categories other than alcoholic,

senile, or psychopathic personality. The total sample receiving intensive interviewing will be 35 cases.

The voluminous interview data have been subjected to detailed content analyses to determine the nature of and the changing aspects of the family's problems and adaptation in the situation of mental illness, and to analyze the influences of various factors upon the family's adjustment.

Major Findings: Since data collection is still under way, reports of findings must be primarily descriptive, impressionistic, and difficult to summarize briefly. One area will be considered: the effects of the illness upon the wife's orientation and communication with other persons. Wives most often turned first to the husband's parents for help (often blaming the husband's parents for his illness) and subsequently to their own families. Most wives felt that their husband's mental illness was a stigma, but there were wide divergencies in their communicating with others about the illness and their problems. About a third were relatively frank in communicating with relatives and friends; another third systematically withheld or markedly distorted reports about the illness; the remaining third varied their reporting with situational factors. Distortion and withholding were positively associated with amount of education, the wife's own acceptance of the fact that the husband was indeed mentally ill, and the amount of affection expressed by the wife for the husband. There is some evidence that attempts at concealment added appreciably to the psychological stress experienced by the wife.

Significance to Mental Health Research: The findings of the present study have special relevance to problems of society's recognition and treatment of pre-hospitalized mentally sick individuals, to questions of hospital procedures in providing the kinds of help that patients' families need, and for understanding some of the problems of rehabilitation of the discharged mental patient. The study can also be viewed within the more general framework of the consequences of serious illness for individual family members and for family structure.

Proposed course of project: The data collection phase of the study in its present design is drawing to a close. The major efforts in the past year have been centered on analysis of the data. From this work four research reports are in preparation:

(1) the wife's perception of her husband's mental illness. The theories and findings from experimental psychology on perception provide the framework for analysis of the processes by which the wives perceive and defend themselves against the reality of mental illness. (2) The social meaning and implications of mental illness--the content of the wife's communications with others about the illness and factors which influence this communication. (3) The process of hospitalizing the mental patient--the attempts of the wife to cope with the mentally ill husband, her utilization of professional resources prior to his hospitalization, and aids or blocks to securing treatment. (4) The wife's relationship with the hospital during the husband's illness--her needs for information, help, psychological support. The preceding papers will be completed in the Spring of 1955 and will be submitted to professional journals for publication. Additional reports on other aspects of the data will be organized in the future.

The second objective in the analysis work now proceeding is to formulate longer range plans in this research area. Since this project began in an area in which there were few data in existence, one objective was to determine what are some of the significant questions to be investigated. On the basis of the present findings a number of such problems has been defined which will be followed up in a series of sub-projects to begin in the Spring of 1955 and to be completed in approximately one year to a year and a half.

It is planned that the data from these several projects will be combined and reported in a monograph or book on the impact of mental illness on the family.

Project Description Sheet

[illegible]
Serial No.

(2) the wife's perception of her husband's mental illness. The findings and findings from dispositional psychology on perception provide the framework for analysis of the processes by which the wives perceive and define illness and the reality of mental illness. (3) the social meaning and implications of mental illness: the reaction of the wife's communities with respect to mental illness and effects upon interpersonal role orientation. (4) the problem of hospitalization: the social patient-the substitute of the wife to cope with the sick [illegible], her utilization of professional resources and [illegible] hospitalization, and role or choice in seeking treatment. (5) the wife's relationship with the hospital during the husband's hospitalization and her information, help, personal and emotional support. The preceding papers will be completed in the fall of 1959 and will be published in professional journals for public [illegible]. Additional reports on other aspects of the study will be completed in the future.

The second objective is the analysis and new processing of [illegible] to formulate longer range plans. In this research area. Since this project began in an area in which there were few data in existence, one of [illegible] was to [illegible] a [illegible] of the significant questions to be [illegible]. In the [illegible] of the present findings a number of [illegible] defined which will be followed up in a series of [illegible] to begin in the Spring of 1959 and to be completed in [illegible] approximately one year [illegible] a half.

It is planned that [illegible] from these several projects will be combined and [illegible] in a [illegible] paper on [illegible] of mental illness in the family.

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December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-49
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$31,950	5	3	8	2½	2-1/3		
FY 1956	12,000	4	2	6	1	1	2	

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10)

The staff of Saint Elizabeths Hospital has given its cooperation in this study by providing the information necessary for locating the families, and by providing access to records and other relevant hospital information.

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S). IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. Mental Health
INSTITUTE

2. Laboratory of Socio-environmental Studies
LABORATORY OR BRANCH

3. Social Developmental and Family Studies
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. NIMH-50
SERIAL NO

6. The Impact of Mental Illness Upon the Family
PROJECT TITLE

7. John A. Clausen and Marian Radke Yarrow
PRINCIPAL INVESTIGATOR(S)

8. Leila C. Deasy, Olive Westbrooke Quinn, E. Grant Youmans
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: To expand the earlier study of the effects of the husband's mental illness upon the family: (1) by obtaining a larger sample for statistical purposes and in order to make more secure generalizations, and (2) by studying families in which a member other than the husband-father is mentally ill. The research will focus more systematically on three research questions explored in the earlier study: (1) what kinds of changes occur in the personal relationships and expectations within the family when one of its members becomes mentally ill? (2) What is the family's understanding of the illness? (3) How does the mental illness influence relationships outside the family?

Methods Employed: The data will be obtained through structured interviews and questionnaires, in two to four sessions with each respondent, soon after the patient's admission to the hospital and later during hospitalization. The population to be studied will include separate sub-samples of white married males and females who are first admissions to a mental hospital.

Major Findings: Project not yet begun.

Significance to Mental Health Research: This project adds to the earlier study by providing additional and comparative data on the consequences of mental illness for the family.

Proposed course of project: The data collection will begin in the Spring of 1955 and will be completed in approximately one year.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-50
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$7000.	3	1	4	3/4	1/3		
FY 1956	10,000	3	1	4	1	2/3	1-2/3	

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10)

The cooperation of one or more additional mental hospitals will be sought, through which patients and their families can be located, and from which relevant hospital information can be obtained.

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S). IF WITHIN NIH)

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Analysis of NIH Program Activities

Project Description Sheet

1. Mental Health
INSTITUTE

2. Laboratory of Socio-environmental Studies
LABORATORY OR BRANCH

3. Social Developmental and Family Studies
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. NIMH-51
SERIAL NO

6. The Adaptation of the Mental Patient to His Family Upon Return From Hospitalization
PROJECT TITLE

7. John A. Clausen and Marian Radke Yarrow
PRINCIPAL INVESTIGATOR(S)

8. Leila C. Deasy, Harriet Murphy, Olive Westbrooke Quinn, Charlotte G. Schwartz
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: (1) To determine some of the crucial problems faced by mental patients and their families after the patients' discharge from a mental hospital, and (2) to determine the relationships between family reactions characterizing the pre-hospital and hospital periods (investigated in the projects described above) and variables in the rehabilitation process.

Methods Employed: Follow-up data will be obtained on mental patients and their families for whom there are available, from previous study, data on the family reactions to the illness and relationships with the patient prior to and during his hospitalization. The follow-up data will be obtained through structured interviews and questionnaires.

Major Findings: None. The data thus far obtained are preliminary and too few to provide generalizations.

Significance to Mental Health Research: The high readmission rate of patients to mental hospitals points to the need for research into the factors influencing the discharged patient's adjustment to the family and the community. The present study will add knowledge on the relationships between events and conditions in

Analysis of NIH Program Activities

Project Description Sheet

NIMH-51
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the post-hospital period and family attitudes and relationships prior to and during the patient's hospitalization.

Proposed course of project: Follow-up data on a small number of cases have now been collected in the intensive interview study. Additional cases can be obtained only as the subjects of the projects described above are discharged from the hospital. The collection of data on this phase of the research on mental illness will probably continue over the next two years.

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December 1954

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Budget Data Sheet

10. NIMH-51
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$5000.	2	1	3	1/2	1/3		
FY 1956	$9000.	2	1	3	1	1/2	1½	

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10)

The cooperation of one or more additional mental hospitals will be sought, through which patients and their families can be located, and from which relevant hospital information can be obtained.

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S). IF WITHIN NIH)

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December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. Mental Health
INSTITUTE

2. Laboratory of Socio-environmental Studies
LABORATORY OR BRANCH

3. Social Developmental and Family Studies
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. NIMH-52
SERIAL NO

6. The Impact Upon the Family of Serious Physical Illness of One of the Family Members
PROJECT TITLE

7. John A. Clausen and Marian Radke Yarrow
PRINCIPAL INVESTIGATOR(S)

8. Olive Westbrooke Quinn and E. Grant Youmans
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: To provide comparative data to those previously obtained on the impact of mental illness, so as to establish the extent to which the responses of families to mental illness are a function of the particular characteristics of mental illness or are characteristic reactions of families to any serious illness. The research will be directed toward two main topics: the family's recognition or acceptance of the illness and the social meaning of the illness for the family.

Methods Employed: Data will be gathered on a small sample of families in which either the wife or husband has a serious illness such as heart disease or cancer. The data will be obtained through a short series of interviews (2 to 4), early and later during the hospitalization of the patient. The interview objectives will parallel those in the study of mental illness.

Major Findings: Project not yet begun.

Significance to Mental Health Research: By providing comparative data from other illness, this study may extend the limits of generalizations which can be made regarding the effects of mental illness.

Proposed course of project: The data will be collected in fiscal year 1956, and the analysis completed in the year.

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December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-52
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	-	-	-	-	-	-	-	
FY 1956	$6,000	2	1	3	1/2	1/3		

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10)

It will be necessary to work out a cooperative arrangement with the staff of another Institute or a general hospital, in order to locate the research sample and to have other hospital records and information.

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S). IF WITHIN NIH)

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December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. Mental Health
INSTITUTE

2. Laboratory of Socio-environmental Studies
LABORATORY OR BRANCH

3. Social Developmental and Family Studies
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. NIMH-52
SERIAL NO

6. The Impact Upon the Family of Serious Physical Illness of One of the Family Members
PROJECT TITLE

7. John A. Clausen and Marian Radke Yarrow
PRINCIPAL INVESTIGATOR(S)

8. Olive Westbrooke Quinn and E. Grant Youmans
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: To provide comparative data to those previously obtained on the impact of mental illness, so as to establish the extent to which the responses of families to mental illness are a function of the particular characteristics of mental illness or are characteristic reactions of families to any serious illness. The research will be directed toward two main topics: the family's recognition or acceptance of the illness and the social meaning of the illness for the family.

Methods Employed: Data will be gathered on a small sample of families in which either the wife or husband has a serious illness such as heart disease or cancer. The data will be obtained through a short series of interviews (2 to 4), early and later during the hospitalization of the patient. The interview objectives will parallel those in the study of mental illness.

Major Findings: Project not yet begun.

Significance to Mental Health Research: By providing comparative data from other illness, this study may extend the limits of generalizations which can be made regarding the effects of mental illness.

Proposed course of project: The data will be collected in fiscal year 1956, and the analysis completed in the year.

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December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-52
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	-	-	-	-	-	-	-	
FY 1956	$6,000	2	1	3	1/2	1/3		

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10)

It will be necessary to work out a cooperative arrangement with the staff of another Institute or a general hospital, in order to locate the research sample and to have other hospital records and information.

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S). IF WITHIN NIH)

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Analysis of NIH Program Activities

Project Description Sheet

1. Mental Health
INSTITUTE

2. Laboratory of Socio-environmental Studies
LABORATORY OR BRANCH

3. Social Developmental and Family Studies
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. NIMH-53
SERIAL NO

6. The Validity of Retrospective Data on Parent-Child Relationships
PROJECT TITLE

7. Marian Radke Yarrow and Nehemiah Jordan
PRINCIPAL INVESTIGATOR(S)

8. None
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: The objective of this project is to investigate the nature and validity of retrospective data concerning parent-child relationships. This will include investigation of systematic changes in recall as a function of: (1) the length of time between the event and the recall of the event, (2) the nature of the psychological events to be recalled, (3) the factors intervening between the event and the recall (such as the child becoming schizophrenic, the parent subsequently being asked to reconstruct from memory the life situation prior to the illness), (4) the psychological situation at the time of recall (such as the current mental health status of the respondent).

Methods Employed: In the past several decades many data on parent-child relationships and early socialization processes have been gathered, contemporaneously, by direct observation or by interviews and questionnaires. Some of the parents and children on whom such data have been gathered will be located and requested to give their retrospective accounts of the conditions of earlier development covered by the contemporaneously gathered data. The variables to be investigated are child rearing methods, relationships between parent and child, personality characteristics of the child, and

social relationships of the child. In addition, data will be obtained on the number of current social and personality characteristics of the respondent.

Major Findings: To date analysis of the available research literature on memory has been completed. In these findings the fallibility of memories of events and conditions in which the person is deeply involved is demonstrated. The data indicate that recall of an event tends to be schematized and that personality factors, need states and social conditions markedly affect recall. Little is known concerning the kinds of information on personal life history which can be reliably obtained through recall, and little is known concerning the conditions which minimize errors or distortions in the recall of such events.

Significance to Mental Health Research: Many research problems such as studies of factors contributing to the development of personality characteristics, delinquency, mental illness and the like, must rely on "life history" material obtained through the subject's recall. The present study, by obtaining systematic data on the kinds of memory changes which occur in recall of parent-child relationships, will provide information which will contribute to more adequate research designs investigating problems of development, will help to evaluate the validity of current data in this field, and will contribute to more adequate theory building in the area of personality development.

Proposed course of project: The project design has been developed. The immediate future will be given to locating and obtaining the cooperation of suitable populations on whom contemporaneous data are available. This work has begun and the cooperation of two university departments has been obtained. The next phase of the research will consist of constructing interview and questionnaire schedules and obtaining the retrospective data from these two sources.

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December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-53
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$7,000.	2	1	3	2/3	1/3	1	
FY 1956	8,000.	2	1	3	2/3	1/3	1	

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S). IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. Mental Health
INSTITUTE

2. Laboratory of Socio-environmental Studies
LABORATORY OR BRANCH

3. Social Developmental and Family Studies
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. NIMH-54
SERIAL NO

6. Socio-cultural Influences on Child Development
PROJECT TITLE

7. Marian Radke Yarrow and Nehemiah Jordan
PRINCIPAL INVESTIGATOR(S)

8. _____
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: To conduct preliminary explorations and to define a specific research problem in the area of the child's development of values, his modes of coping with failure, conflict and success; and the ways in which the child sets goals for himself and goes about achieving these goals; using a social-cultural framework of development, not exclusive of family influences.

Methods Employed: The precise techniques have not been developed. They will probably be a combination of interviewing and contrived experimental social situations.

Major Findings: Thus far a review of the literature on development studies has been completed. This shows a concentration of research on the effects of parent-child relationships upon the child's development. The child's relationships with other children and the influences of groups and environmental factors outside the family have received much less attention. There is greater emphasis in the research upon the pathologies of child development rather than upon the creative and constructive aspects of development.

Significance to Mental Health Research: We are attempting to develop a broader base (beyond the immediate parent-child relationship) for understanding pathological and healthy

child development and for more effective control of the child's total environment--by investigating social factors outside the home which influence the child, and by investigating the relative importance and varied effects of these and of family factors in different aspects of child development.

Proposed course of project: Until the Fall of 1955 only exploratory work will proceed on this area. A specific research design will be developed and pilot data be gathered during the Fall and Winter. It is not possible now to predict the duration of the project.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-54
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$4,000	2	1	3	1/3	1/3	2/3	
FY 1956	12,000	3	1	4	1-1/3	1/3	1-2/3	

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S). IF WITHIN NIH)

R.P.C. - 3
December 1954

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH-54
q SERIAL NO.

16. LIST PUBLICATIONS OTHER THAN ABSTRACTS FROM THIS PROJECT DURING CALENDAR YEAR 1954:

Child Psychology, Chapter 1, in Annual Review of Psychology, Vol. 6, Annual Reviews, Inc., Stanford, California, 1955.

17. LIST HONORS AND AWARDS TO PERSONNEL RELATING TO THIS PROJECT DURING CALENDAR YEAR 1954:

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Project Description Sheet

1. Mental Health
INSTITUTE

2. Laboratory of Socio-environmental Studies
LABORATORY OR BRANCH

3. _____
SECTION

4. Hagerstown, Maryland
LOCATION (IF OTHER THAN BETHESDA)

5. NIMH-55
SERIAL NO

6. Social, Demographic, and Health Factors Relating to Mental Illness in Washington County, Maryland
PROJECT TITLE

7. Dr. John A. Clausen and Dr. Melvin L. Kohn
PRINCIPAL INVESTIGATOR(S)

8. _____
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: To determine (1) whether social isolation in adolescence is a predisposing factor in the development of schizophrenia; (2) whether the patterns of parent-child relations described by previous investigators on the basis of interviews with parents of schizophrenics are confirmed by interviews with schizophrenics themselves; and whether these patterns vary by class background and other social characteristics of the patients; (3) whether residential and occupational mobility are significantly related to the development of schizophrenia; and (4) whether selected social factors are related to prognosis in schizophrenia.

Methods Employed: Structured interviews with all available persons hospitalized for schizophrenia from Hagerstown during the years 1940-1952; similar interviews with a carefully-selected control group, matched with these patients on the basis of their social characteristics as of a period well before hospitalization. (The matching procedure is based on the availability in Hagerstown of records of earlier Public Health Service morbidity studies.)

Major Findings: (1) Though a significantly greater proportion of schizophrenics than of normal paired controls give evidence of having been socially isolated during adolescence, social isolation

Analysis of NIH Program Activities

Project Description Sheet

SERIAL NO

does not seem to be a predisposing factor in the illness. Rather, social isolation appears to be the result of prior difficulties in interpersonal relationships--a consequence, rather than a cause of developing illness. (2) Interviews with schizophrenics confirm and amplify previous findings reporting that the schizophrenic's mother has typically played a very strong authority role, and his father a very weak authority role, toward the child. The structuring of authority relations in families of schizophrenics differed most sharply from that of normals in families of relatively higher socio-economic status.

Significance to Mental Health Research: This research provides basic data on the relationship between several social variables and the development of schizophrenia. It permits more detailed specification of social variables in further epidemiological research in schizophrenia.

Proposed Course of Project: Materials relating to the third and fourth objectives of the research (above) are presently being analyzed. We are planning, as a direct outgrowth of this research, an intensive study of social class differences in values and in interpersonal patterns within the family group.

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December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-55
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$9,200	2	1	3	1	1	2	
FY 1956								

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10)

The Division of Public Health Methods provided office space in Hagerstown during the field operations, and access to their files on morbidity studies, on which selection of a control group was based.

The Department of Mental Hygiene of the State of Maryland provided a $5,000 grant in aid, access to their central files and the files of State hospitals, and permission to interview present and former patients. The various private hospitals of the State of Maryland provided access to records and patients.

Members of the Washington County Medical Society provided information about, and access to, their patients.

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

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December 1954

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH-55
SERIAL NO.

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16. LIST PUBLICATIONS OTHER THAN ABSTRACTS FROM THIS PROJECT DURING CALENDAR YEAR 1954:

"The Ecological Approach in Social Psychiatry" by John A. Clausen and Melvin L. Kohn, American Journal of Sociology, LX, September, 1954, pp. 140-151.

"Social Isolation and Schizophrenia" by Melvin L. Kohn and John A. Clausen, American Sociological Review, in press.

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17. LIST HONORS AND AWARDS TO PERSONNEL RELATING TO THIS PROJECT DURING CALENDAR YEAR 1954:

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December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. Mental Health
INSTITUTE

2. Laboratory of Socio-environmental Studies
LABORATORY OR BRANCH

3. _____
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. NIMH-56
SERIAL NO

6. Social Factors Producing Vulnerability to Psychological Stress
PROJECT TITLE

7. Melvin L. Kohn
PRINCIPAL INVESTIGATOR(S)

8. None
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: To conduct preliminary explorations and generate hypotheses on social variables which influence personality development in such ways as to increase the probability of psychological breakdown under stress. Subsequently to design a systematic study in this area.

Methods Employed: Intensive interviewing of subjects from diverse social backgrounds to secure data on self-concepts, values and attitudes toward various types of deviance. Possibly analysis of data derived from psychotherapy.

Major Findings: Project not yet begun.

Significance to Mental Health Research: Differential rates of psychosis and neurosis in various population groups, and of psychiatric breakdowns in stressful situations such as prolonged combat (or even military training) suggest that vulnerabilities to stress are probably socially conditioned and patterned. May lead to further clues as to basis of class and occupational differentials in rates of functional psychosis.

Proposed course of project: Exploratory work will begin in January 1955 and continue for perhaps 6 months. Thereafter a sharper focus and research design will be attempted.

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December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-56
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$4,000	1	0	1	½	-	½	
FY 1956	16,000.	3	1	4	1½	2/3		

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S). IF WITHIN NIH)

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December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. Mental Health
INSTITUTE

2. Laboratory of Socio-environmental Studies
LABORATORY OR BRANCH

3. _____
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. NIMH-57
SERIAL NO.

6. Social Psychological Factors in Juvenile Delinquency in a Suburban Area
PROJECT TITLE

7. Dr. John A. Clausen, Dr. E. Grant Youmans
PRINCIPAL INVESTIGATOR(S)

8. None
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: To serve as a pilot project on the nature of family backgrounds and associations of juvenile delinquents residing in relatively favored suburban areas.

Methods Employed: Analysis of juvenile court and clinic records. Interviews with delinquents and families

Major Findings: Research not yet begun

Significance to Mental Health Research: It is likely that the relative influence of psychological and socio-environmental variables upon juvenile delinquency varies by social and economic status of the population. This study may lead to the design of a larger project to obtain significant data which are crucial for planning programs aimed at controlling juvenile delinquency.

Proposed Course of Project: Examination of court records will be commenced in the fall of 1955, with interviewing beginning somewhat later. The further development of the project will depend upon preliminary findings.

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-57
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	-	-	-	-	-	-	-	-
FY 1956	$5,000	2	-	2	2/3	-	2/3	-

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956; IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

Arrangements will probably be worked out through the Montgomery County Youth Commission and Montgomery County Juvenile Court. The Laboratory has worked cooperatively with these agencies in the past.

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

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December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. Mental Health
INSTITUTE

2. Laboratory of Socio-environmental Studies
LABORATORY OR BRANCH

3. _____
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. NIMH-58(C)
SERIAL NO

6. The Relationship Between Nurses' and Aides' Perceptions of Given Psychiatric Patients and Their Functioning With These Patients
PROJECT TITLE

7. Leila Calhoun Deasy and Gwen Tudor Will
PRINCIPAL INVESTIGATOR(S)

8. None
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: (1) To determine the reported perceptions of each patient resident on a ward for adult psychotics at the Clinical Center held by all members of the nursing staff; (2) to relate staff members' reported perceptions of patients to the reported amount and nature of contact with patients; and (3) to describe, for this ward, the reported amount and kind of nursing provided for individual patients, and patients as a group, on a series of sample days.

Methods Employed: The project was formulated on the basis of observations of interaction patterns among nurses, aides, and patients that were made during the summer of 1954. The procedure to be followed in gathering data on the specified problem is as follows: (1) all aides and nurses will be interviewed, with an interview guide, to explore their perceptions of and to determine the "reputation" of each patient; and subsequently (2) all aides and nurses will be interviewed to determine, for a series of sample days, the number, nature of, reasons for, requirements of and characteristics of each contact they have had with each patient on those days. (All nursing personnel on the disturbed men's ward at Chestnut Lodge have been interviewed about patients resident there, in an extensive pre-test of the interview guide to be used in the first phase of this project.)

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Project Description Sheet

NIMH-58(C)
SERIAL NO

Major Findings: None

Significance to Mental Health Research: Relating patients' "reputations" to the amount and kind of nursing care provided should indicate the extent to which "stereotyping" of of patients rather than therapeutic considerations come to influence how the patient is dealt with. These data should have fairly direct application to problems of nurse training and ward administration.

Proposed Course of Project: Interviewing of personnel will take place in the latter part of January of 1955. Exploration of the number, nature and reasons for all contacts will take place on sample days in February, March and April. It is anticipated that all data will have been analyzed and reported before July 1, 1955.

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December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-58(C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$4000	1	0	1	1/2	1/3		
FY 1956	$4500	1	1	2	1/2	1/3		

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10)

Psychiatric Nursing Service, Clinical Center

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

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Project Description Sheet

1. Mental Health
INSTITUTE

2. Laboratory of Socio-environmental Studies
LABORATORY OR BRANCH

3. _____
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. NIMH-59(C)
SERIAL NO

6. Study of the Norms Regulating Interaction Among Patients and Personnel on Wards Containing Some Psychotic Patients
PROJECT TITLE

7. Erving Goffman (Research Associate, Visiting Scientist Program)
PRINCIPAL INVESTIGATOR(S)

8. None
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: It is an assumption that in every scene of recurrent social activity a set of implicit moral rules arises by which the individuals present are expected to regulate activity, especially their conduct toward one another. These implicit regulations or injunctions are expressed in action through such mechanisms as tact, self-control, deference, politeness, decorousness, seemliness, etc. In ordinary social situations many of these rules of behavior are so automatically and consistently followed that the researcher himself remains unaware of the patterning of behavior that he and his subjects are sustaining. It is just these kinds of rules, however, that psychotics constantly break; for what the psychiatrist sees as a psychotic symptom the layman sees as a social impropriety. It is therefore felt that ward social life provides a good setting in which to develop our understanding of: (1) the implicit expectations which regulate interpersonal conduct, (2) the types of corrective mechanisms that occur when infractions of the rules arise.

Methods Employed: (1) Participant observation in the capacity of a patient (normal control) in a ward containing some psychotics, some psychosomatics and some normal controls. (2) Observations in the

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SERIAL NO.

capacity of staff member in a ward given over to two schizophrenigenic mothers and their schizophrenic daughters.

Major Findings: Cannot be reported yet.

Significance to Mental Health Research: May help to provide interactional terms for describing certain mental symptoms. May help provide criteria for evaluating therapeutic progress in terms of interpersonal functioning on the ward.

Proposed course of project: Collection of data, which started November 1, to continue for six months, to be followed by a six-month period of analysis.

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December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-59(C)
Serial No.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$5,200.	1	-	1	2/3	-	2/3	
FY 1956	8,000.	1	1	2	1	1/3	1-1/3	

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10)

Clinical Investigations Branch, NIMH, provides the setting and consultation on this research.

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S). IF WITHIN NIH)

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December 1954

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Project Description Sheet

1. Mental Health
INSTITUTE

2. Laboratory of Socio-environmental Studies
LABORATORY OR BRANCH

3. _____
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. NIMH-60(C)
SERIAL NO

6. Nursing Personnel's Response to Altering Aspects of the Traditional Social Structure on a Mental Hospital Ward
PROJECT TITLE

7. Charlotte G. Schwartz
PRINCIPAL INVESTIGATOR(S)

8. Dr. Louis Cholden and Dr. Morris Parloff
OTHER INVESTIGATOR(S)

9. PROJECT DESCRIPTION

Objectives: To investigate the nursing personnel's response to an attempt by the ward administrator to develop new roles for the administrator and nursing personnel on a ward where schizophrenic patients are under treatment. Specifically, to study this problem by investigating changes in (1) personnel's perception of patients, in the nursing care actually provided, in their stated principles of nursing care, and in alternative patterns of nursing care visualized; and (2) in their acceptance of the ward philosophy. These data will be related to independently gathered evaluations of changes in the patients' behavior during the four months the above data are being gathered.

Methods Employed: 1. Each aide and nurse on the unit will be interviewed through the use of a non-structured interview which will cover the following topics: (a) a characterization of each patient on the ward in terms of general ward behavior and imputed traits; (b) problems patient has on the ward or that nursing personnel have with her; (c) patients' needs or requirements which might be met through nursing care; (d) how these needs are met; (e) alternative ways of meeting these needs; and (f) the factors which influence these perceptions and actions, including the way in which the administrator influences the above. These interviews will be conducted at three periods: approximately 6 weeks after

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the ward has been in operation, 2 months later, and another 2 months later. The administrator of the ward will be interviewed weekly during this four month period to gather data on his philosophy of ward management and to note changes in his philosophy and behavior in the role of ward administrator.

2. Analysis will be made of records of ward meetings and nurses' notes to document roles played by the administrator and nursing personnel in defining the ward social structure.

Major Findings: Not yet available.

Significance to Mental Health Research: An attempt to change the social structure of a psychiatric ward to achieve greater therapeutic effectiveness raises many problems for the personnel on the ward. A systematic exploration of the impact of this attempt on the personnel on the ward will provide important clues as to the means whereby professional roles may be modified administratively.

Proposed Course of Project: Interviewing of personnel started in December 1954 and will continue through the first three months of 1955. It is anticipated that all data will be analyzed and reported by January 1956. (The principal investigator will be on extended leave during the spring and summer of 1955).

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December 1954

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Budget Data Sheet

10. NIMH-60(C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$2,500.	1	-	1	1/3	-	1/3	
FY 1956	2,000.	1	-	1	1/3	-	1/3	

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

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December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. Mental Health
INSTITUTE

2. Laboratory of Socio-environmental Studies
LABORATORY OR BRANCH

3. _____
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. NIMH-61
SERIAL NO

6. Administrative Careers of Persons Trained in the Management Intern Programs Sponsored by the U. S. Civil Service Commission
PROJECT TITLE

7. E. Grant Youmans
PRINCIPAL INVESTIGATOR(S)

8. None
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: To discover the relationships between selected social psychological characteristics and career types of administrative personnel in the Federal Service.

Methods Employed: Data will be collected by means of a self-administered questionnaire mailed to about 500 Federal employees throughout the United States who have participated in a management training program sponsored by the U. S. Civil Service Commission.

Major Findings: Not yet available.

Significance to Mental Health Research: Little is known of the relationship between social and psychological factors which make for successful careers in various settings and the handling of various types of stress encountered in these settings. The present relatively modest study may be expected to generate hypotheses for more rigorously designed studies in this field.

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Project Description Sheet

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Proposed course of project: About one-half of the 500 questionnaires have been returned. It is expected that about 80% of the questionnaires will be returned after follow-ups are made in January, 1955. The first few months of the calendar year 1955 will be devoted to analyzing the data. Investigations will be made of the relationships between socio-economic status, career patterns, psychological stress, authoritarianism, and parent-child relations. In addition to memoranda for administrative use, one or two papers will be prepared for professional journals.

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December 1954

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Budget Data Sheet

10. NIMH-61
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$4500.	1	-	1	2/3	-	2/3	
FY 1956	-	-	-	-	-	-	-	

12. BUDGET ACTIVITY:

RESEARCH /X/ ADMINISTRATION /_/

REVIEW & APPROVAL /_/ TECHNICAL ASSISTANCE /_/

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10)

The Civil Service Commission, through the Director of the Management Intern Program, has provided access to current trainees and the names and addresses of persons who have previously completed this training course.

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S). IF WITHIN NIH)

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December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. Mental Health
INSTITUTE

2. Laboratory of Socio-environmental Studies
LABORATORY OR BRANCH

3. _____
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. NIMH-62
SERIAL NO

6. Social Psychological Research on Factors Relating to Acceptance of a Public Health Program
PROJECT TITLE

7. John A. Clausen
PRINCIPAL INVESTIGATOR(S)

8. Leila C. Deasy, Charlotte G. Schwartz, Marian Radke Yarrow, E. Grant Youmans
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: To ascertain (1) the attitudes of parents toward participation of their children in the polio vaccine trials; (2) the adequacy of knowledge (and the misconceptions prevailing) as to the nature of the trials; (3) the effectiveness of certain sources of information and other factors influencing parents to give or withhold consent for their children to receive the inocculations; (4) and the ways in which parents communicated with children and others about the vaccine trials.

Methods Employed: Interview of a selected sample of parents of second grade children in five public schools, rural, suburban and urban, stratified as to whether they gave or withheld consent; observation of orientation sessions given by the health officer to parents at the schools; observation of the children receiving inoculations at the schools; content analysis of communication media available in the Washington area for material relating to polio vaccine trials.

Major Findings: One generalization which may be derived from this study is that persons of high economic and educational status tend to be favorable toward a program which incorporates scientific methodology and professional skills toward the end of improving public health;

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Project Description Sheet

NIMH - 62
SERIAL NO.

persons lower on the socio-economic scale and less highly educated tend to have difficulty in assessing the objectives of such a program and seem less inclined to seek out professional guidance or information which might help them to come to a logical decision based on maximum knowledge of the program. Consequently the latter group is more likely to possess misconceptions and suspicions about the program, leading to non-participation.

Significance to Mental Health Research: Mental health educational programs, and indeed most public health programs, require effective communication and the avoidance of undue anxiety if the general population is to be influenced to participate. This study of reactions to a major test of an immunizing agent illustrates the importance of a knowledge of social variables in achieving public health objectives.

Proposed course of project: Project is complete except for writing of additional research reports if time permits.

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December 1954

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Budget Data Sheet

10. NIMH-62
SERIAL NO.

11. BUDGET DATA:

Project costs primarily carried in last half of FY 1954.

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$2500	2	0	2	1/3	-	1/3	
FY 1956								

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10)

Field interviewing for this project was carried out by the Bureau of Social Science Research, American University, under a grant from the National Foundation for Infantile Paralysis at the request of the Laboratory of Socio-environmental Studies.

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S). IF WITHIN NIH)

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December 1954

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH-62
SERIAL NO.

16. LIST PUBLICATIONS OTHER THAN ABSTRACTS FROM THIS PROJECT DURING CALENDAR YEAR 1954:

"Parent Attitudes Toward the Participation of their Children in Polio Vaccine Trials" by John A. Clausen, Morton A. Seidenfeld and Leila C. Deasy, American Journal of Public Health, December, 1954.

17. LIST HONORS AND AWARDS TO PERSONNEL RELATING TO THIS PROJECT DURING CALENDAR YEAR 1954:

Not directly related to this project, but relevant to this research orientation, Dr. Clausen has been invited to become a member of the Committee on Disaster Studies of the National Research Council, which reviews on-going research and allocates N.R.C. funds available for this purpose to applicants for grants.

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December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. Mental Health
INSTITUTE

2. Laboratory of Socio-environmental Studies
LABORATORY OR BRANCH

3. _____
SECTION

4. N.Y.State Psychiatric Institute
LOCATION (IF OTHER THAN BETHESDA)

5. NIMH-63
SERIAL NO.

6. A Twin Family Study of Mental Deficiency
PROJECT TITLE

7. Dr. Franz J. Kallmann (non-PHS) and Dr. Gordon Allen
PRINCIPAL INVESTIGATORS

8. George S. Baroff, M.A.; Diane Sank, M.S. (both non-PHS)
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: To assess the frequency with which subnormality can clearly be ascribed to non-genetic factors, and to elucidate the interaction of genetic constitution with environmental causes of subnormality. Also, to develop better methods for the collection and analysis of twin data in medical research.

Methods Employed: Mentally subnormal twins are compared clinically and psychologically with their twin partners and, in selected cases, with other close relatives. Efforts are made in each case to obtain an accurate diagnosis of zygosity, an accurate description, and the best possible etiological classification. Such intensive study is possible in only about one-fourth of all cases.

During the calendar year 1954, 82 new index cases have been added. This brings the total to 679 index cases representing 539 sets of twins, 12 sets of triplets and 2 sets of quadruplets.

Major Findings: In the State of New York, institutionalization because of mental deficiency is somewhat more frequent among twins than among single-born, and the difference is especially great among cases ascribed to birth trauma. Cerebral palsy among the defective twins only occasionally appears to have a genetic basis, but is very often associated with early death of the twin partner.

Analysis of NIH Program Activities

Project Description Sheet

NIMH-63
SERIAL NO.

Theoretical study has revealed several sources of error in the accepted methods of analyzing medical data on twins, and has led to an improved formula for the estimation of twin concordance rates.

Significance to Mental Health Research: The study provides a basis for further twin studies in mental subnormality, and affords both statistical and absolute information about etiology.

Proposed Course of Project: During the remainder of the fiscal year emphasis will be placed on collection of clinical data. Thereafter, Dr. Allen will return to Bethesda and devote his time mainly to analysis and reporting of the findings. During recent months a promising approach to the study of mongolism has emerged, and this type of defect will receive particular attention in the time that remains.

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-63
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$17,700	1	0	1	1	0	1	0
FY 1956	$ 7,000	1	0	1	1	0	1	0

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10)

New York State Department of Mental Hygiene provides the setting for the research, the subjects, and laboratory and psychological services, the latter on a contract basis.

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

R.P.C. - 3
December 1954

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH-63
SERIAL NO.

16. LIST PUBLICATIONS OTHER THAN ABSTRACTS FROM THIS PROJECT DURING CALENDAR YEAR 1954:

"Frequency and Types of Mental Retardation in Twins" by Gordon Allen and Franz J. Kallmann, American Journal of Human Genetics, 7 (1), 1955, in press.

"Cases of Cerebral Palsy in a Series of Mentally Defective Twins" by Gordon Allen, American Journal of Mental Deficiency, 59 (3) 1955, in press.

17. LIST HONORS AND AWARDS TO PERSONNEL RELATING TO THIS PROJECT DURING CALENDAR YEAR 1954:

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. NIMH

2. Research Branch

3. Section on Technical Development

4. Bethesda, Maryland

5. NIMH-64

6. Section Reorganization and Moving to Building 10

7. Michael M. Davis, Jr.

8.

9. During the year a major effort was devoted to the planning for and moving to the Clinical Center from Building T-6. The Section facilities were greatly expanded and were organized on a permanent basis.

There have been three major accomplishments in this growth and reorganization process. A small shop facility has been set up for use not only by the Section but also directly available to the research staffs of the various laboratories of the Institutes (NIMH and NINDB). A small stock room of specialized instruments and components not otherwise available has been established. Components are available for withdrawal by other groups within the two Institutes, and specialized instruments, mostly electronic, are available for loan. In conjunction with the stock room, an abbreviated stock control records system has been put into operation so that material will be available when needed and so that future requirements may be more adequately anticipated.

The reorganization effected during the year has made available to many research programs specialized components and instruments not otherwise available at NIH. This has expedited research programs in many cases and avoided many a waiting period often required between an idea and its concrete realization. The Section shop performed three major services for the research program: it has made shop tools and facilities available for use by the scientist himself, a situation which often makes his tasks easier and often more fruitful; it has performed stop-gap emergency work when the central shop facilities were badly overloaded; and it has made possible a program within the Section itself of specialized instrument and apparatus design and development otherwise impossible.

This project has essentially been completed. However, another move to another space in Building 10 is contemplated toward the end of calendar year 1955. A minimal amount of reorganization will be required and plans are being made so as to interrupt our program for as short a time as possible during the moving and resettling period.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-64

11.

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL
FY 1955	2200	1	2-1/2	3-1/2	0	1/2	1/2
FY 1956	1000	1	3	4	0	1/3	1/3

12. Research

13. --

14. --

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. NIMH

2. Research Branch

3. Section on Technical Development

4. Bethesda, Maryland

5. NIMH-65

6. Repair, Maintenance and Technical Assistance

7. Michael M. Davis, Jr.

8. --

9. Although the Section does not undertake repair and maintenance of commercially built equipment as a primary function, there are a number of circumstances which make it expedient or more economical for us to undertake such work. In general, of course, we repair equipment built by the Section. Fortunately this takes very little time.

Most of our repair and maintenance work is performed in those areas and laboratories where adequate technical assistance is presently lacking. We render technical assistance in these areas as well, and although such assistance is minimal because we are not staffed for this kind of work, it is in this way that such areas and labs carry on effectively with their equipment and instruments. The two areas in which most of our repair work has been done and technical assistance given are Clinical Investigations of NIMH and the Experimental Psychology Laboratory.

This project will continue during the coming year on a similar basis as in the past.

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-65

11.

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL
FY 1955	1500	0	4	4	0	1/3	1/3
FY 1956	2100	0	4	4	0	1/2	1/2

12. Research

13. --

14. --

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. NIMH

2. Research Branch

3. Section on Technical Development

4. Bethesda, Maryland

5. NIMH-66

6. Consultation, Internal Operation, and Administrative Activities

7. Michael M. Davis, Jr.

8. George E. Kaufer

9. Consultation with investigators from both NIMH, NINDB and occasionally with the Prof. Education Branch and the Research Facilities Planning Branch was carried out as a part of the basic function of the Section. The objectives of this part of the program are to improve research techniques, to assist in furthering good experimental design, and to advise on the latest commercially available equipment, components, and scientific instruments.

Outside of the usual administrative duties encountered in any office and laboratory, which need not be described, there are certain ones of a specialized nature peculiar to the Section. The Section maintains a stock control record system in order to anticipate future needs, but more immediately to maintain a supply of specialized components required by the various laboratories and for the Section itself. A property loan record is maintained since a considerable amount of equipment, instruments and apparatus is loaned to various investigators. These loans, as the term implies, are on a temporary basis. Sometimes this allows an investigator to conduct an experiment without the expenditure of funds, sometimes it expedites his work while he waits for his own equipment, and sometimes it allows him to determine if he needs the apparatus at all. In any event the loaning of equipment often saves a considerable expenditure of funds, and often saves weeks or months of waiting. (NIH has a central loan service, but the type of apparatus they provide is different than that which the Section has available.

An indexed catalog file is maintained of the latest specialized instruments, and equipment, predominately electronic, or electromechanical, which is used constantly in the course of design and development work and for consultation.

The procurement of equipment, components and supplies of various sorts originates in the Section to a degree beyond its own needs. During the course of design of equipment or systems for other laboratories the Section draws up the specifications and prepares requisitions for the material. In this way we effect more accurate and efficient procurement of equipment, attempting to maintain a degree of standardization where feasible, and assure products consistent with our design. The same procurement procedure is often used after consultations, wherein we prepare the specification after it has been determined what commercially available equipment will do the job the investigator wants done.

There are several other internal activities of the Section not falling specifically within other Section Projects Reports. Outside of the day-to-day maintenance of the laboratory and shop facilities, we attempt to keep the Section equipped with the most useful instruments and tools in order to make our overall program most effective. This involves the continual re-evaluation of our facilities and thus occasional modification of our tools and instruments in order to better meet our needs.

This project will continue during the coming year.

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-66

11.

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL
FY 1955	10,757	2	5	7	2/3	1-1/3	2
FY 1956	10,000	2	5	7	2/3	1-1/2	2-1/6

12. Research

13. --

14. --

Analysis of NIH Program Activities

Project Description Sheet

1. NIMH

2. Research Branch

3. Section on Technical Development

4. Bethesda, Maryland

5. NIMH-67

6. Design, Development, and Construction Activities

7. Michael M. Davis, Jr.

8. George E. Kaufer

9. Objectives:

To provide the specialized research tools of the scientist which would not otherwise be available, and to develop new instruments, techniques and methods which may be of general use to medical research programs.

General Comments:

This project will include many sub-projects which are considered projects themselves within the Section. These internal projects vary enormously in scope, complexity, and significance. Much design and development is devoted to apparatus which has very limited application to a particular investigator's problem. An attempt is made to generalize such equipment so that it may be useful in other situations, but this is not always possible or practicable. However, some developments potentially have wide possibilities and will be reported in greater detail.

Two general classes of projects are handled; those originating within the Section and those which are developments of consultation with and by request of scientists in other areas. The methods of procedure involves preliminary discussion of the problem into a concrete design and set of specifications. It must then be determined what equipment or components are commercially available and what aspects of the project the Section must do. From here actual development and construction begins, leading to a model or the finished apparatus. Initial use often demonstrates the need for design modification. By working closely with the investigator in his own laboratory it is thus possible to achieve mutually agreeable results.

Specific Projects:

The Section projects are grouped by the various laboratories for which designs and development were undertaken.

A. Clinical Psychiatry:

1. A radical modification of several commercial tape recorders is nearing completion. The recorders must meet difficult specifications with regard to reliability, recording time, transcription use, remote controllability, number of input channels and output level. No commercially available recorders were found suitable. This Section project will result in the psychiatrists being able to get better use from their interview and conference recordings. However, it should be pointed out

that there is sufficient potential use for a recorder to meet our specifications to justify our urging a commercial manufacturer to undertake production of such a machine.

2. The childrens service is faced with a problem of adequate reporting of activities and behavior of the patients. The Section is studying and will design and develop a communication system to provide an observer with a sub-miniature transmitter which he will wear and which will broadcast his verbal observations to a receiver and recorder as far as one mile away. This sort of procedure has been used successfully before but with rather bulky and heavy transmitters. We shall incorporate the latest electronic techniques using printed circuits and transistors in order to reduce weight by several fold. It is anticipated that this communication system will be used both within buildings (using repeater stations if necessary) and in the open; e.g., in play areas, woods and beaches, where the patientswill be taken at times in groups.

Since it has been found that accurate and detailed reporting of an extended series of events is extremely difficult and that continually recorded comments of such a situation greatly improves recall, it is anticipated that this communication system will significantly improve the quality of some of the studies being made in the childrens service.

B. Psychology Laboratory, Clinical and Experimental:

1. A study of suggestibility should include some quantitative measures correlated with suggestibility. Two projects have been undertaken to provide apparatus which would give such a quantitative measure. (However, it is not our province to decide whether the quantities measured are a measure of suggestibility).

a. The first of these consists of a very small wire mounted in a hand held holder. The wire is held against the skin and is heated very gradually. The subject watches the experimenter turn a knob which increases the temperature of the wire. When the subject first feels the heat he presses a button which records the time elapsed since the experimenter started turning the heat knob (which the subject is watching). However, the first part of the rotation of the heat knob applies no power to the heater wire, and it is during this time that the suggestible subject is likely to press his button. The less suggestible subject will wait until the knob is turned far enough to actually apply heat to the wire.

b. the second project is concerned with the body sway of a blindfolded subject. A recorded voice suggests to the subject he is falling forward, while he is supposed

to stand still and upright. The apparatus developed measures and records the amount and direction of sway of the subject in quarter inch and one inch increments. Previous methods have generally recorded sway by a pen writing actual motion on a moving strip of paper. This method was slow and tedious to analyze and it is hoped that this new method will simplify analysis and yet give adequate quantative data. This project is nearly completed.

2. One project has been completed, and one initiated in connection with aging studies.

a. The first is a special rat cage to work with a motion transducer and amplifier-recorder system. The cage is made only large enough to hold the largest rats with adjustable baffles to restrain smaller rats from moving too much. The rats' front feet stand on an insulated plate so that the animal can be given an electrical shock. The cage is made of very thin aluminum and plexiglass so that the mass of the cage is small compared with that of the rat. The motion of the cage, supported by two stages of shock absorbers, is picked up by the motion transducer and then amplified and recorded on a Sanborn recorder. By this means heart beat and respiration may be recorded without applying instruments to the animal. The effect then of electrically shocking the animal can be measured and very accurate shock-muscle-response times can also be measured. These things are being studied in relation to aging by the Psychology Laboratory. This developmental project has been completed.

b. An apparatus has been designed and now is under development to measure some forms of hearing discrimination, which will be studied as related to aging. The equipment produces a burst of controlled clicks at adjustable loudness worn by a human subject. A controlled number of clicks (such as the telephone dial effect) from one to twenty are delivered at a rate of one per second up to fifty per second. Thus the subject's ability to count or discriminate the number of clicks may be studied while number, intensity, and rate are varied.

3. A study of psychological stress in rats is being undertaken by the Psychology Laboratory. This Section has designed and constructed an apparatus to produce such stress (according to the psychologists). The rat is housed in a cage containing eleven insulated rods as a floor, on some of which the rat must stand. At random (but adjustable) intervals the equipment turns on a tone signal which the animal hears. This signal continues for a preset interval of from 1-15 minutes at which time an electrical shock of constant current is delivered sequentially between one floor rod and the other ten so that the animal is shocked no matter on what rods it is standing.

The apparatus has been made flexible so that anticipated additions can be made to the system so that light signals and rat-activated levers may be integrated with it. The present system is awaiting completion of cage racks for actual use.

4. A constant current stimulator has been designed and built to deliver currents from one to ten milliamperes of controlled duration. The equipment is presently being used in the Psychology Laboratory, but is of general purpose use where reproducible results are required relating stimulus strength and response where skin resistance might alter the current delivered in any other than a constant current device.

C. Biophysics Laboratory:

1. A stabilized direct current amplifier and power supply has been redesigned from an original by Dr. John Moore specifically to drive an Esterline-Angus Recorder. The amplifier provides a sensitivity of one millivolt full scale and is stable and independent of line voltage variations. It has been designed especially to be physically small and electrically stable for field use where line voltage variations are expected to be large.

2. An automatic step attenuator has been designed to deliver preset voltage pulses ranging from plus 60 to minus 130 millivolts. The stepping switch is advanced automatically by the pulse generator. A set of coded indicator lights simultaneously light in appropriate sequence around the face of the cathode ray tube on which the results of the applied stimulus pulses are observed and photographed.

3. A redesign of the Tektronix Type 161 Pulse Generator has been effected in order to stabilize the pulse amplitude to within 1% while large supply voltage may occur and during warm-up time. This has been necessary to make possible certain critical biophysical measurements.

D. Neurochemistry Laboratory:

1. A project just getting under way is concerned with developing an analog computing machine to compute in seconds that which now takes minutes or hours with human brains alone. The computation is that of cerebral blood flow. The raw data is recorded as a curve plotted on a Leeds & Northrup recorder. The resulting curve is then photographed and introduced as a slide into a photoformer or arbitrary function generator (Wm. Miller Corp.) which in turn scans the curve and delivers an electrical signal whose function with time is the curve to be analyzed. The signal is then fed to the computing network which will give an output in cc of blood per hundred grams of tissue per minute.

Although the computing equipment is being designed specifically for the problem of blood flow, it has

broader possibilities in any analogous situation. The arbitrary function generator (a commercially available equipment) will find many uses especially in the neurophysiological field.

2. In the course of analyzing many feet of records from an Esterline-Angus recorder it became apparent that a device which would allow rectilinear measurements on a curvelinear scale would greatly hasten analysis and also improve accuracy. A reader was constructed which provided two equivalent time scales at the edges of a paper guide. A transparent slide, curved to match the radius of the recorder pen, is placed over the record. The position of ends of the curved slide is read on the time scales of the reader as the reference line of the slide is moved from point to point along the recorded curve. The device enables one to set any arbitrary point on the recorded curve as a reference point and measure time from this quickly, easily and accurately.

This simple instrument is useful only with records from this particular type of recorder, but its principle is applicable to reading any curvelinear record.

E. Neurophysiology Laboratory:

1. Micropipettes and microneedles have become nearly commonplace in the field of neurophysiology. Along with them must go devices to position them with an accuracy commensurate with their minute size. A simple and inexpensive micropositioner was developed operating on an hydraulic principle using the mechanical advantage of a small and large hypodermic syringe to reduce linear travel. A ten CC syringe is mounted in a suitable swivel to a Horsley-Clarke apparatus. This is coupled by inelastic plastic tubing to a 1/4 CC syringe. The small syringe piston in turn is coupled by a special ball-joint to a modified micrometer caliper which is calibrated in hundredths of a millimeter. Thus, with the hydraulic advantage of the different sized pistons the micrometer reads 1.3 microns per division. Since the 1/4 CC syringe does not give much total travel to the 10CC one, a 10CC resevoir syringe is connected into the system by a three-way valve. In this way the micropipette can be given as much total travel as needed.

2. A small size time base and signal amplitude calibrator was designed and developed by the Section. Although of a rather specialized nature for a particular investigators apparatus system, with slight modification it would become a most useful general purpose instrument. Producing pulses of 1% accuracy in amplitude from a 0.5 to 100 millivolts and pulse intervals of either 1, 5, or 10 milliseconds with similar accuracy, the instrument is particularly well suited to biological needs. Further work directed toward more general purpose application is planned.

F. Neuroanatomy Laboratory:

1. A thermistor type thermometer was designed and built with dual thermisters of special design to measure the temperatures of a cat's ears. The instrument has an accuracy of about one-half degree C, is portable and responds fully to temperature changes within a few seconds.

G. Clinical Neurology:

1. There has been a continued need for better methods of producing small controlled lesions in the central nervous system, particularly to do so in a manner which would not stimulate neural tissue. Radio frequencies have long been known not to stimulate biological tissues and have been applied to such procedures as electrocautery, and surgical cutting. However, such commercial machines for electrosurgery are entirely inadequate for the fine control necessary for producing small brain lesions. A small 500 killocycle radio frequency generator was designed to have sufficiently sensitive control and stability to be suitable for producing lesions from less than 1/2 mm. to several millimeters in diameter with either monopolar or bipolar electrodes.

2. A year or so ago a communication system was developed for the neurosurgery operating team in order to provide adequate communication between members of the team, including the electroencephalographer and recording secretary in an observation room, and between surgeon and patient (under local anesthetic). The system has proved to be virtually indespensible but has had the drawback that it requires wires to and from members of the operating team. These run across the floor and present a hazard and nuisance value. We are presently designing a wireless system with extremely small transmitters and receivers for the members of the operating team.

The present system has proven so useful and yet has such an obvious drawback that the wireless system can overcome, and such a communication system has so much potential use in almost any complex surgical situation, that we are considering this one of our more important projects of the coming year.

H. There have been any number of miscellaneous minor projects undertaken which might be classed as gadgets, accessories or minor modifications. None of these appear to be of sufficient importance to report on in detail at this time.

10. NIMH-67

11.

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL
FY 1955	19,043	2	4	7	1-1/3	1-1/3	2-2/3
FY 1956	28,300	2	4	7	1-1/3	2-5/6	4-1/6

12. Research

13. --

14. --

R.P.C. - 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Research Branch
BRANCH

3. Office of the Associate Director
SECTION

4. Bethesda, Maryland
LOCATION

5. NIMH-68
SERIAL NO.

6. Scientific Direction of Basic Research Program
PROJECT TITLE

7. Seymour S. Kety
PRINCIPAL INVESTIGATOR

8. Robert E. Motley
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

To organize, administer and direct a large program in the sciences basic to an understanding of mental and neurological disease. This program is supported jointly by NIMH-NINDB (see report of Basic Research Program, NIMH-NINDB).

R.P.C. - 2
December 1954 Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-68
SERIAL NO.

11. BUDGET DATA

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL
FY 1955	66,450	2	6	8	2	6	8
FY 1956	56,400	2	6	8	2	6	8

NOTE: Above funds and positions utilized by DCO.

12. BUDGET ACTIVITY: RESEARCH

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956:

None

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH:

None

R.P.C. - 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Neurochemistry
LABORATORY OR BRANCH

3. ---
SECTION

4. Bethesda, Maryland
LOCATION

5. NIMH - 68A
SERIAL NO.

6. Organization of the Laboratory of Neurochemistry
PROJECT TITLE

7. Seymour S. Kety
PRINCIPAL INVESTIGATOR

8. ---
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

The Laboratory of Neurochemistry, dealing with the biochemical aspects of cerebral function and including the physical-chemical structure of the brain, the intermediary metabolism of proteins, fats, carbohydrates in the brain, and a correlation of these observations *in vivo* and *in vitro*, represents one of the most important aspects of the Basic Research Program. At present this laboratory consists of three independent sections, physical chemistry, lipid metabolism, and cerebral metabolism, headed by competent young investigators. The Scientific Director is also acting chief of this laboratory temporarily. It is important that a senior biochemist and one who has made contributions related to the chemistry of the brain be appointed as chief of this laboratory. A committee has been set up to advise the Scientific Director on this appointment and active recruitment will proceed during the next several months. The incumbent, after his appointment, will wish to appoint members of his own staff and to begin the equipment of the section in which he will do his own research in addition to the advisory function he will play for the laboratory as a whole. It is hoped that this appointment can be made before the conclusion of fiscal year 1955.

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH - 68A
SERIAL NO.

11. BUDGET DATA

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL
FY 1955	10,200	2	2	4	1	1	2
FY 1956	20,909	2	3	5	2	3	5

12. BUDGET ACTIVITY: RESEARCH

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956.

None

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH.

None

R.P.C. - 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Office of Director

2. Publications and Reports Section 4. Bethesda, Maryland 5. NIMH-69

6. Professional and Public Education and Information: Pamphlets, Reports, Articles, Speeches.

7. Harold P. Halpert

8. Elizabeth M. Dach, Mildred L. Frye, William F. Barry

9. In pursuance of its long-range policies and plans for providing educational and informational materials for professional and lay groups, the P&R Section prepared a series of 5 new pamphlets addressed to non-psychiatric vocational groups whose contacts with the public make them key figures among the potential resources for mental health. Within five months or less, these pamphlets--addressed to the nurse, the social worker, the teacher, the policeman, and the industrial foreman--have gone through at least two printings for GPO sales stock (in addition to those printed for NIMH distribution), and the Superintendent of Documents has sold 37,159 copies. The series of pamphlets on Careers in Mental Health--as Psychiatrist, Psychiatric Nurse, Clinical Psychologist, Psychiatric Social Worker--were revised and printed. As a result of an announcement mailed to members of the American Personnel and Guidance Association, large quantities of these pamphlets have been distributed to fill requests; the Superintendent of Documents ordered 3,000 of each of these four pamphlets, and in a little over 2 months have sold almost 5,000 copies. The pamphlet on Training and Research Opportunities under the Mental Health Act was revised and brought up to date; well over 10,000 copies of this pamphlet have been distributed following placement of announcements in various professional journals. The pamphlet on the National Institute of Mental Health was completely rewritten and brought up to date, with an extensive treatment of the Institute's intramural laboratory and clinical research program. Now off the press, a limited distribution is being planned to interested and appropriate personnel. In addition to the above new pamphlets, the annotated set of reference guides to soft-bound literature were revised and kept up to date; these lists serve as a catalog to mental health literature.

The NIMH Progress Report, which serves as a national clearinghouse for information about mental health program activities, was issued monthly through September as a NIMH publication. Starting with the October issue, in conformance with a ruling by the Bureau of the Budget, the contents of

this newsletter were merged with the NAMH Reporter, monthly newsletter of the mental health voluntary society, and distributed to the combined NAMH and NIMH Progress Report mailing lists (following circularization of the NIMH list to determine whether respondents wished to receive the new publication). Interest in the NIMH newsletter has increased steadily over the past few years, and amalgamation of our periodical with the Reporter raised the circulation of the NAMH publication from about 1,500 to well over 5,000.

In keeping with the educational and informational responsibilities of the P&R Section, a number of articles, speeches, and special reports were prepared for the general public, and for specialized audiences. With the growing intramural research program of the Institute, increased emphasis was placed on research progress reporting and on summaries of research highlights. A series of charts on the field of mental health and what the NIMH does to meet the problems was prepared for use in presenting the Institute's program.

In addition to the above activities, P&R performed its usual routine informational work, including clearance of professional and other papers, preparation and editing of one-time reports.

R.P.C. 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-69

11. Budget Data

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$24,101	4	2	6	2	1 2/3	3 2/3	0
FY 1956	31,601	5	3	8	3	2 2/3	5 2/3	0

12. Budget Activity:

Research [x]

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH-69

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16. List Publications other than Abstracts from this Project during Calendar Year 1954:

Extensively Revised:

Training and Research Opportunities under the National Mental Health Act, Public Health Service Publication No. 22

National Institute of Mental Health, Public Health Service Publication No. 20

Careers in Mental Health, Public Health Service Publication No. 23

Careers in Mental Health

. . . as a Psychiatrist, Public Health Service Publication No. 25
. . . as a Psychiatric Nurse, " " " " " 26
. . . as a Clinical Psychologist, " " " " 27
. . . as a Psychiatric Social Worker, " " " 28

New Publications:

The Role of the Police in Mental Health, Public Health Service Pub. No. 360
Nurses--Your Opportunity to Foster Day-to-Day Mental Health, Public Health Service Publication No. 345
The Social Worker's Role in Mental Health, " " " " 351
It's Good Business to Know Your Men, " " " " 379
The Teacher and Mental Health, " " " " 385

R.P.C. - 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Office of Director

3. Publications and Reports Section 4. Bethesda, Maryland 5. NIMH-70

6. Professional and Public Education and Information: Films, Radio, Television, Exhibits

7. Harold P. Halpert

8. Robert L. Campbell

9. During 1954, P&R concentrated on the presentation of mental health messages and shows through established radio and TV programs. During the Mental Health Week period, for example, top news commentators on all the major networks discussed the national problem of mental illness and urged cooperation in Mental Health Week activities; these commentators included Sevareid and Jackson of CBS, Vandercook of ABC, Beatty of NBC, and Edwards of Mutual. Among the entertainment or dramatic shows that gave up to 5 minutes for mental health messages were One Man's Family and Walter Cronkite's Morning Show. Ed Murrow's See It Now, the Ruth Crane show, and the Georgetown University Forum also carried mental health programs.

For Mental Health Week, P&R produced a brief film spot featuring Celeste Holm (who contributed her time) that was made available to and used by TV stations and movie theaters throughout the country. A similar filmed message featuring a top news commentator is being planned for this year. Also for Mental Health Week, P&R placed a message in the May-June issue of the Advertising Council's Radio-TV Bulletin which is circulated to all radio and TV stations for guidance in working up public service spot announcements.

Several new projects for the development of more effective mental health education techniques via TV and films were initiated by P&R during 1954. One of these, which combines the telecasting of a series of existing mental health films with discussion groups organized on a community-wide basis and conducted in the homes of specially oriented lay leaders, is being developed as a pilot project in the Denver (Colorado), Salt Lake City (Utah), and Jacksonville (Florida) areas. Extensive involvement of community agencies and civic organizations, and intensive community organization for mental health work, are integral concomitants of the project. Plans are underway to attempt evaluation studies in connection with the project in Denver and Salt Lake City.

Another developmental project now underway is the preparation of packaged half-hour TV panel discussion programs. A kit, consisting of suggested program notes, outline for the discussion, promotional material, and a "visual"--a 4-minute film clip from Preface to a Life--is currently

in preparation. This project will be tested in connection with Mental Health Week this year and, if successful, a series of such programs will be developed in the near future.

During 1954, two new mental health exhibits were prepared. One, a simple lightweight table-top display for mental health literature, was designed by P&R staff and prepared under contract. The other, entitled "Recent Advances in Research on Mental Illness," was designed and prepared as the NIMH component of the 100-foot PHS exhibit on Medical Research built for display at the Scientific Meetings of the AMA. NIMH exhibits were displayed at 13 professional meetings during the year, including, in addition to meetings of mental health personnel, meetings of the American Association of School Administrators, Deans of Women, American Personnel and Guidance Association, and the National Education Association. It is estimated that at least 100,000 people saw the various NIMH exhibits during 1954.

We cooperated with research staff of Smith, Kline and French and their script writer in the preparation of The March of Medicine, television program, on Schizophrenia, its research and treatment.

Dr. Felix appeared on the Meet Your Congress show on July 4, 1954.

Planned during 1954 and currently in production is a photographic file documenting care and treatment in mental hospitals. These still photos, designed to illustrate articles, pamphlets, and other mental health publications produced by P&R or by outside writers or magazines with P&R assistance, will be taken at St. Elizabeths. Prints of the photos will also be used in connection with the centennial of St. Elizabeths during 1955; assistance in arranging for suitable celebration of this event is being provided by P&R.

In addition to the above audio-visual activities, P&R continued its regular function of previewing new mental health films, publicizing those which the staff felt would be used in professional or lay education, and purchasing prints for distribution to Regional Offices and State mental health authorities. During 1954, P&R owned 142 16mm prints (76 different titles); total number of bookings was 715; 55 different prints were circulated to the States. Most of the bookings are to the States, made through Regional Offices.

Transcriptions of the 13-week series of half-hour documentaries (produced and broadcast over the NBC network during 1953) continued to be popular for use with local groups. At the request of the State mental health authorities, who were circularized by the regional offices, P&R purchased sets of these transcriptions for deposit with and use by each of the States.

R.P.C. 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-70

11. Budget Data

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$31,763	2	3	5	1 2/3	3 1/12	4 3/4	0
FY 1956	31,763	2	3	5	1 2/3	3 1/12	4 3/4	0

12. Budget Activity:

Research /x/

R.P.C. - 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Office of Director

3. Publications and Reports Section 4. Bethesda, Maryland 5. NIMH-71

6. Press, Magazines, etc.

7. Mildred L. Frye, Elizabeth M. Dach

8. William F. Barry

9. During 1954, mental health was well represented in articles appearing in seven national magazines--Fortune, Saturday Evening Post, Reader's Digest, Woman's Home Companion, Cosmopolitan, Business Week and Mademoiselle. Continuing its work with editors, science and feature writers, the Publications and Reports staff provided information for these articles, arranged interviews with appropriate staff members, reviewed manuscripts when requested and, in some instances, stimulated editorial interest in a specific subject.

Fortune published an article by Francis Bello on brain research; the Saturday Evening Post published two articles by Morton Hunt--one on suicide and the other on a genetic study of mental illness, aided by a grant from this Institute; Reader's Digest published an article by Dr. William Menninger on the Army's work with draftees; the Woman's Home Companion, an article on community mental health services by Albert Q. Maisel; Cosmopolitan, an article on schizophrenia and research, by Mr. and Mrs. Edward Brecher; Business Week, a review of research on mental illness by John Fockler; and Mademoiselle, an article by Verna Small on opportunities for women in the mental health professions.

Other articles for which the Publications and Reports staff provided information were: new drugs in mental health treatment and research, Wall Street Journal; two articles on mental health research in the New York Herald Tribune; a series of articles on mental hospitals in the Syracuse (N.Y.) Herald Journal; Eve Edstrom's article on child studies at the Clinical Center, in the Washington Post and Times Herald; two articles on treatment of mental illness and biochemical research by Robert Goldman, in Parade; three articles on mental health problems by Leonard Snyder for syndication by King Features; and an article on alcoholism for International News Service.

Articles prepared by Institute staff in cooperation with the Publications and Reports staff were: an article on psychiatric research at the Clinical Center published in Mental Hospitals, a monthly publication of the American Psychiatric Association; an article on how emotional factors affect driving, published in the monthly magazines of State and local American Automobile Association clubs; an article on mental health programs in South Dakota Health Highlights (magazine of the State health

department); article on careers in mental health in Occupational Outlook Review (Labor Department publication); and a facts-about-mental-illness article in the Fort Campbell (Ky.) Courier (an Army post community newspaper).

The Publications and Reports staff provided information on research on mental illness to the National Mental Health Committee for publication in a book entitled WHAT PROGRESS AGAINST MENTAL ILLNESS.

In June, a meeting was held of professional and research staff members interested in the problems of aging to discuss with Mrs. Edith Stern the contents of an After Fifty series of six letters to be published by the National Association for Mental Health for distribution to men and women employed in industry.

Information was provided to the National Health Council and the Equitable Life Assurance Company for use in their joint project--Operation Health Careers--to interest young people in selecting a professional or non-professional career in the health and medical services of the country.

As part of its cooperative work with the National Association for Mental Health, the Publications and Reports staff prepared and distributed a kit of materials for use in National Mental Health Week observances throughout the country. Selected pamphlets, leaflets, suggestion for programs, and information about films, transcriptions, etc. were distributed to all State mental health authorities, the women's auxiliary of the American Medical Association, General Federation of Women's Clubs, the Association of Junior Leagues of America, the Kiwanis, Rotary, and other organizations who had expressed an interest in mental health activities. President Eisenhower's Proclamation of Mental Health Week and the Joint Resolution of Congress were distributed through the Departmental Regional Offices. In addition, special newspaper and publicity outlet circulation was made to a selected mailing list.

The Publications and Reports Section added sixteen new reprints to its stock of professional, scientific and popular materials which are distributed in answer to public inquiries. There are now about 125 different pamphlets and reprints being distributed covering most of the important aspects of mental health activities and services. One of these reprints--three articles on the pharmacist and mental health written by the Publications and Reports staff for the Journal of the American Pharmaceutical Association--was also distributed in large quantities by the National Association for Mental Health and the American Pharmaceutical Association.

Human Relations Aids, a clearinghouse for mental health publications and films purchased 3,000 copies each of the following NIMH pamphlets: The Social Worker and Mental Health, The Teacher and Mental Health, for inclusion in its kit of new educational materials which are distributed bi-monthly to 3,000 subscribers directly involved in planning and conducting mental health programs.

R.P.C. 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-71

11. Budget Data

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$19,001	3	4	7	1 1/3	2 2/3	4	0
FY 1956	19,001	3	4	7	1 1/3	2 2/3	4	0

12. Budget Activity:

Research /x/

R.P.C. 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Office of Director
LABORATORY OR BRANCH

3. None
SECTION

4. Bethesda
LOCATION

5. NIMH-72
SERIAL NO.

6. Consultant services to Research and Training grants program.
PROJECT TITLE

7. National Advisory Mental Health Council and Training Committee.
PRINCIPAL INVESTIGATOR(S)

8. None
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION (SEE INSTRUCTIONS AND SAMPLES)

Evaluate, review and advise the Surgeon General on applications for research and training grants.

R.P.C. 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-72
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$20,500	0	0	0	2	0	2	
FY 1956	25,500	0	0	0	3	0	3	

12. BUDGET ACTIVITY:

REVIEW & APPROVAL /x/

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December, 1954 Analysis of NIH Program Activities

Project Description Sheet

1. NIMH
2. Office of the Director
3. Program Services
4. Bethesda, Md.
5. NIMH-73
SERIAL NO.
6. Review and approval
7. Hattie D. Arnold
8. Agnes V. Cosgrove
9. PROJECT DESCRIPTION

This section has continued to perform all administrative functions in connection with research, training and special grants. These functions include receipt and processing of applications, preparation of applications and supporting materials for review by advisory groups, awarding of grants, processing payments, planning and preparing summary data for budget hearings and advisory groups, devising procedures for new programs and improving existing procedures, working with the Division of Research Grants and the fiscal office on grant matters.

A total of 675 applications were received and processed; 485 grants were awarded. In connection with 230 graduate grants, appointment forms for 763 traineeships were received and processed.

R.P.C. - 2
December, 1954 Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-73
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS PROF	OTHER	TOTAL	MAN YEARS PROF	OTHER	TOTAL	PATIENT DAYS
FY 1955	26,000		6	6		$5\frac{1}{2}$	$5\frac{1}{2}$	
FY 1956	33,000		8	8		$7\frac{1}{2}$	$7\frac{1}{2}$	

12. BUDGET ACTIVITY: Review and approval
Administration - 4 positions, $17,000, for 1955 and 1956.

13. None

14. None

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December, 1954

15.
SERIAL NO.

16.) Not appropriate
17.)

R.P.C. 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Biometrics Branch

3. _____ 4. _____ 5. NIMH-74

6. Historical Studies of Mental Hospital Practices

7. M. Kramer and H. Goldstein

8. _____

9. Project:

Historical studies of mental hospital practice are needed to provide a background against which to study and to evaluate current mental hospital practices. This entails collection of appropriate data for studies of trends of first admission rates to selected hospitals and of the probabilities of release, death or continued stay on an historical basis. These studies should be supplemented by follow-up studies of patients released from the hospital to provide information as to how many discharged patients relapse and how soon and how relapse rates are related to diagnosis, sex, age on admission, length of hospitalization, and therapy, and to a variety of social and environmental factors.

R.P.C. 2
December 1954

10. NIMH-74

11.

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	0							
FY 1956	40,000	0	0	0	.5	0	.5	

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

R.P.C. - 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Biometrics Branch

3. Current Reports Section
Outpatient Reports and Records Unit 4. _____ 5. NIMH-75

6. Collection of uniform national data on outpatient psychiatric clinics.

7. Anita K. Bahn, Chief, Outpatient Reports and Records Unit

8. Dr. Morton Kramer, Chief, Biometrics Branch

9. Objectives: To continue development of uniform definitions and statistical methods in the outpatient psychiatric area; to compile and analyze national data collected and to publish appropriate reports; to provide consultative service to State Mental Health Authorities and other appropriate agencies in the collection, processing, and analysis of data on clinic populations and in the design of special studies.

Methods Employed: During the last 2½ years the Biometrics Branch has developed statistical methods in this field. A preliminary draft of a uniform national report form has been developed and improved as the result of considerable consultative work with State Mental Health Authorities, psychiatric clinics, professional organizations and other Federal agencies, and trial experience in 24 States. Information reported includes geographic areas served, hours per week the clinic is open, number, age, sex and diagnosis of persons served, type and amount of service to patients, outcome of treatment, community services rendered, professional staff members and trainees, and source of funds.

Major Findings: Prior to initiation of this report form on a nationwide basis on July 1, 1954, a First Conference on Mental Health Clinic Statistics was held in Bethesda. Sixty representatives from 28 States, the Veterans Administration and the National Institute of Mental Health - Administrators, psychiatrists, clinical psychologists, social workers and statisticians - reviewed the trial experience with the report form and definitions. The statistical methods and definitions were approved with only minor modifications.

Significance to the National Institute of Mental Health: The data will assist in planning for additional clinic facilities, developing professional training programs, determining clinic staffing patterns, and providing information to legislative and other supporting bodies regarding the clinic's activities and their costs. The need for these data was further underscored by the National Governors' Conference on Mental Health which termed the lack of uniformity in statistical methods a major obstacle to adequate evaluation of hospital and clinic procedures and therapies.

Proposed Course of Project: It is expected that nearly all States will have initiated State-wide reporting of clinic data by the end of this fiscal year. Procedures at the clinic, State, Regional Office, and National Institute of Mental Health central office levels have been largely worked out for the collection and processing of these data and are now being put into effect. Consultative services to States and clinics will be continued and assistance will be given to States in analysis of their data. Extensive analyses of the national data are being planned.

Additional conferences on Mental Health Clinic Statistics will be held to review experience with the report form to provide modifications as needed by changing program, to aid in the analysis and utilization of the data collected, and to help in charting the future direction of the nation-wide clinic statistical program.

At the First Conference a number of interstate multidiscipline committees were designated to work on various phases of the uniform report form, such as on problems of reporting diagnostic classifications. Other committees were designated to broaden the area of uniform definitions and to develop techniques for pilot clinic statistical studies such as time-cost and work load, and patient follow-up. Further conferences on mental health clinic statistics will provide the framework for carrying out such studies on a cooperative basis among interested States.

States have requested that reporting plans be extended to include other types of mental health facilities, such as counselling centers and family service agencies, so that a total picture of mental health services in a community can be obtained. Field work, consultation and field tests to develop suitable methodology will be initiated if possible.

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-75

11.

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$22,000	1-1/3	2	3-1/3	1-1/3	2	3-1/3	-
FY 1956	60,700	10-1/3	8	18-1/3	12-1/3	7	19-1/3	-

12. RESEARCH /X/

13. Community Services Branch, NIMH - Assistance in further development of project.

PHS Regional Offices - Mental Health Consultants and Others - Responsible for distribution, collection, follow-up and review of report forms.

State Mental Health Authorities - Assistance in further development of project; provision of facilities and personnel for field collection of data as part of regular State function.

Outpatient Psychiatric Clinics - Maintenance of necessary records and data reporting.

14. None

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH-75

16. (1) Mental Health Clinic Statistics - Needs, Sources, Methods, by Anita K. Bahn, Public Health Reports, Vol. 69, No. 7, July 1954.

(2) Mental Health Clinic Statistics - Conference Report - prepared by Outpatient Reports and Records Unit, Public Health Reports, Vol. 69, No. 10, October 1954.

(3) Outpatient Psychiatric Clinics in the United States and Territories - Statistical Studies, Issue No. 1, Clinic Listing 1954.

17. _____

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Biometrics Branch

3. Current Reports Section, Hospital Records and Reports Unit 4. _____ 5. NIMH-76

6. Model Reporting Area for Mental Hospital Statistics

7. M. Kramer and H. Goldstein

8. E. S. Pollack and B. H. Kroll

9. Project: Model Reporting Area for Mental Hospital Statistics

Objectives: Establish and maintain standard definitions, tabulations and classifications to achieve more uniform and meaningful statistics.

Methods Employed: Annual conferences of mental hospital administrators and statisticians representing the Model Reporting Area are held in order to discuss developments in the field of mental hospital statistics occurring during the year and to explore methods of obtaining more adequate data on the hospitalized mentally ill. All member States subscribe to uniform definitions of movement terms and complete a series of 27 basic census schedules annually supplemented by cyclical schedules which vary from year to year. The States of the Area have been encouraged to undertake so-called cohort studies by which it is possible to determine what happens to first admissions by age, sex and diagnosis and other variables during specified periods of time following admission to State mental hospitals.

Major Findings: Project is still underway. Data have been tabulated but not analyzed to date. Thirteen of the 15 States in the Area have undertaken or will shortly undertake cohort studies of first admissions as mentioned above.

Significance to Mental Health Research: Provide mental hospital census data using uniform definitions and tabulating formats which make it possible to insure comparisons that are more meaningful. The 15 States comprising the Model Reporting Area represent about two-thirds of the State mental hospital resident population throughout the country. One of the points recommended at the February 1954 National Governors' Conference on Mental Health for action by all of the States was that, "All States should cooperate with the U. S. Public Health Service and the American Psychiatric Association in the adoption of uniform terminology for statistical procedures in the field of mental health." Cohort studies of first admissions will extend knowledge of the

epidemiology of mental disorders and will provide data for States to evaluate their mental hospital systems and pinpoint areas for essential research.

Proposed Course of Project: Data will be published in monograph form when a sufficient number of member States tabulate the data as required. There were published, "Proceedings of the Third Conference of Mental Hospital Administrators and Statisticians," P.H.S. Publication No. 348, 1954. The Fourth Annual Conference of Mental Hospital Administrators and Statisticians was reported in some detail in "Progress in Reporting Mental Hospital Statistics" published in Public Health Reports, September 1954.

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-76

11.

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$28,538	3	5	8	1	1 2/3	2 2/3	-
FY 1956	84,000	9	10	19	6	4 2/3	10 2/3	-

12. RESEARCH /X/

13. Cooperation received from the State Mental Hygiene Departments of 15 States.

14. None

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Biometrics Branch

3. Current Reports Section, Hospital Reports and Records Unit 4. _____ 5. NIMH-77

6. Annual Census of Patients in Mental Institutions

7. H. Goldstein, E. S. Pollack and B. H. Kroll

8. _____

9. Project: Annual Census of Patients in Mental Institutions

Objectives: Provide basic data on incidence and prevalence of hospitalized mental disorder, mental defect and epilepsy in the United States.

Methods Employed: Data obtained on admissions to and separations from State mental hospitals, city and county mental hospitals, psychopathic hospitals, Veterans Administration hospitals, private mental hospitals, general hospitals with psychiatric facilities, public and private institutions for mental defectives and epileptics on annual census schedules.

Major Findings:
Mental Hospitals:

(1) Based on an over-all reporting for prolonged care hospitals that was 92.0 percent complete in 1951, the resident patient rate per 100,000 population was 386.8. In 1941 the rate was 372.7.

(2) State mental hospitals accounted for 85.0 percent, Veterans Administration hospital 8.7 percent, county and city hospitals 3.9 percent and private hospitals 2.4 percent of all resident mental patients.

(3) The first admission rate to hospitals for the prolonged care of mental patients per 100,000 population in 1951 was 98.8, an increase of 20.5 percent over the 1941 rate of 82.0. It should be noted that the rate of first admissions, aged 65 years and over per 100,000 civilian population to State mental hospitals increased from 170.4 in 1940 to 203.6 in 1950, a 19.5 percent increase.

(4) The annual rate of discharge per 1,000 average patients on the hospital books of hospitals for the prolonged care of psychotic patients, was 283.5, as compared to 178.2 in 1941.

(5) The rate of death per 1,000 patients under treatment in hospitals for prolonged care of psychiatric patients decreased from 61.4 in 1941 to 56.5 in 1951.

(6) The ratio of full-time personnel to patients in State mental hospitals in 1951 was 4.5 as compared to a ratio of 5.8 in 1941. For specific types of personnel these ratios were as follows: physicians, 1951 ratio 249.6, 1941 ratio 293.9; graduate nurses, 1951 ratio 108.8, 1941 ratio 109.9; other nurses and attendants, 1951 ratio 8.1, 1941 ratio 10.1; social workers, 1951 ratio 548.8, 1941 ratio 928.8. With the exception of graduate nurses these ratios have all improved in the last 10 years.

(7) In 1951 the per capita maintenance in State mental hospitals was $831.65 as compared to $306.62 in 1941, an increase of 171 percent.

General Hospitals:

(8) The number of resident patients in 1951 in general hospitals with psychiatric facilities was 6,587. This was a 10.7 percent increase from that in 1941, 5,950. Admissions rose during the same period from 84,398 to 128,186, an increase of 51.9 percent. Separations rose during the period from 84,031 to 128,009, an increase of 52.3 percent.

Institutions for Mental Defectives and Epileptics:

(9) Based on an over-all reporting for public and private institutions for mental defectives and epileptics that was 84.0 percent complete in 1951, the resident patient rate per 100,000 population was 89.9. This was 14.1 percent greater than the rate of 78.8 in 1941.

(10) Public institutions accounted for 94.9 percent of the institutionalized mental defectives and epileptics, private institutions for the remaining 5.1 percent.

(11) The first admission rate to institutions for mental defectives and epileptics per 100,000 population in 1951 was 7.8, a decrease from the 1941 rate of 8.7.

(12) The annual rate of discharges in institutions for mental defectives and epileptics per 1,000 average patients on the books was 44.2 as compared to 51.6 in 1941.

(13) The rate of death per 1,000 patients under treatment in these institutions decreased from 20.7 in 1941 to 18.7 in 1951.

(14) The ratio of full-time personnel to patients in public institutions for mental defectives and epileptics in 1951 was 4.7 compared to a ratio of 6.1 in 1941. For specific types of

personnel the ratios were as follows: physicians, 1951 ratio 495.8, 1941 ratio 495.8; graduate nurses, 1951 ratio 209.2, 1941 ratio 246.5; other nurses and attendants, 1951 ratio 8.8, 1941 ratio 11.3; teachers, 1951 ratio 176.7, 1941 ratio 162.9. Graduate nurse and other nurse and attendant ratios showed some improvement over the 10 year period. Physician ratios showed practically no improvement, while teacher ratios became worse.

(15) In 1951 the per capita maintenance in public institutions for mental defectives and epileptics was $810.77 as compared to $287.98 in 1941.

Significance to Mental Health Research: Provides basic information regarding the incidence and prevalence of hospitalized mental disorder by diagnosis, age and sex, staffing ratios for the various types of personnel, per capita maintenance costs and data on type of expenditure. The annual census data have been utilized by many agencies, both public and private, to provide an historical perspective in discerning trends in admission, resident patient or separation rates by age, sex and diagnosis, staffing ratios and per capita maintenance costs for the United States and for each State and to provide the necessary framework for administrative planning. For instance, the Council of State Governments in its comprehensive reports, "The Mental Health Programs of the 48 States," "Training and Research in State Mental Health Programs," and "Midwestern Regional Survey in Mental Health Training and Research, Statistical Summary" has acknowledged the assistance rendered by the Biometrics Branch in furnishing data to it from census reports. The Southern Regional Education Board in its report, "Mental Health Training and Research in the Southern States," makes extensive use of census data furnished by the Branch to make projections for the year 1975. Much of the current planning for beds, personnel, etc., that the States are doing in the mental hospital field would have been impossible without the national and State data furnished by the annual census of mental patients.

Proposed Course of Project: The data were published in the volume, "Patients in Mental Institutions: 1950-51," PHS publication number 356. The census is repeated annually in order to supply the request for this type of data by workers in the field. A release was published entitled, "Patients in Public Hospitals for the Prolonged Care of the Mentally Ill, 1952," Mental Health Statistics, Current Reports, Series IMH-B54, No. 1, giving summary data based on preliminary tabulations for prolonged care hospitals reporting in the 1952 Census of Patients in Mental Institutions. Similar releases covering 1953 data for prolonged care hospitals and public institutions for mental defectives are in press.

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-77

11.

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$24,453	1	6	7	1/3	4 1/3	4 2/3	-
FY 1956	60,000	2	6	8	1-1/3	4 1/3	5 2/3	-

12. REARCH /X/

13. Cooperation received from the State Mental Hygiene Departments of the 48 States and St. Elizabeths Hospital, and from the Veterans Administration in furnishing census data.

14. None

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Biometrics Branch

3. Current Reports Section, Hospital Reports and Records Unit 4. _____ 5. NIMH-78

6. Consultative Services to Public and Private Agencies on Problems Relating to Mental Hospital Record Systems and Statistics

7. M. Kramer, H. Goldstein and E. S. Pollack

8. _____

9. Project: Consultative services to public and private agencies on problems relating to mental hospital record systems and statistics.

Objectives: Provide consultative and advisory services to public mental hospital systems and to private agencies with respect to the collection, tabulation and analysis of mental hospital and institutions data and with respect to contemplated statistical research projects in this area.

Methods Employed: Upon request, visits are made to the research and statistics bureaus of State mental hygiene departments, to individual State mental hospitals or public institutions for mental defectives and epileptics where no such bureaus exist, or to private agencies in order to advise on (1) how to set up or develop statistical record systems, (2) what data to collect, (3) methods of tabulating and analysis, and (4) contemplated statistical research projects in this area.

Major Findings: State mental hygiene departments have been assisted to develop statistical systems that would make for more meaningful and comparable data from State-to-State.

Significance to Mental Health Research: Assists State mental hygiene departments to set up and develop statistical systems which gives them the type of data needed for administrative purposes, for evaluation of their programs, as well as for certain types of basic research projects on the epidemiology and treatment of major mental disorders. Furthermore, when attempts are made to standardize definitions and tabulations, even where States are not in the Model Reporting Area, a greater degree of inter-State comparability is achieved. During 1954 the following States received consultation from the Biometrics Branch on matters pertaining to improvement of the mental hospital record system or on matters pertaining to research projects: California, Washington, Oregon, Michigan, Texas, Montana, North Dakota, Kansas, Wisconsin, Indiana, Ohio and District of Columbia.

Proposed Course of Project: It is expected that consultative services will continue to be furnished as long as the need for such services exists.

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-78

11.

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$ 9,672	3	1	4	1	2/3	1 2/3	-
FY 1956	11,300	3	1	4	1	2/3	1 2/3	-

12. RESEARCH /X/

13. Cooperation received from public and private agencies throughout the country who have requested assistance as mentioned above.

14. None

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Biometrics Branch

3. Current Reports Section, Hospital Reports and Records Unit 4. _____ 5. NIMH-79

6. Study of the services and therapies available for mental patients in general hospitals in the United States in 1951.

7. H. Goldstein and B. H. Kroll

8. M. Kramer

9. Project: Study of the services and therapies available for mental patients - general hospitals in the United States in 1951.

Objectives: (1) Determine (a) which general hospitals admit patients with a suspected diagnosis of mental illness, (b) what diagnostic and treatment facilities are available in such hospitals for psychotics, psychoneurotics, or other types of mental illness and (c) the specific types of therapies that are available where patients are accepted for treatment. (2) Bring up-to-date the list of general hospitals with psychiatric facilities that are requested to submit schedules in the annual census of mental patients.

Methods Employed: A questionnaire was designed in order to secure information on the above-mentioned points. This questionnaire was addressed to all known general hospitals secured from the American Medical Association and American Hospital Association directories and from other sources.

Major Findings: Data have been tabulated but analysis has not been completed. However, as a result of this survey the census list of general hospitals with psychiatric facilities has been increased from 157 to 675 hospitals.

Significance to Mental Health Research: Before the initiation of this survey little, if any, was known as to the types of facilities and services available to mental patients in general hospitals. This survey made available the first authentic data of this type.

Proposed Course of Project: It is planned to publish two papers on this survey, (1) a paper showing the actual results obtained from the questionnaire, and (2) another paper indicating in detail the methodology employed in securing a response rate of over 99% to this mail questionnaire.

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-79

11.

	ESTIMATED EXPENDITURE	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$1,912	1	-	1	1/3	-	1/3	-
FY 1956	-	-	-	-	-	-	-	-

12. RESEARCH /X/

13. Cooperation received from 4,714 general hospitals throughout the country in replying to the questionnaire.

14. None

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Biometrics Branch

3. Current Reports Section, Hospital Reports and Records Unit 4. _____ 5. NIMH-80

6. Follow-up of first admissions to Warren State Hospital, Warren, Pennsylvania, 1916-1950.

7. M. Kramer and H. Goldstein

8. R. H. Israel and N. A. Johnson, Warren State Hospital, Warren, Pennsylvania.

9. Project: Follow-up of first admissions to Warren State Hospital, Warren, Pennsylvania, 1916-1950.

Objectives: Determine the patterns of release of patient from a State mental hospital, admitted from 1916 through 1950 with respect to such factors as age, sex and diagnosis.

Methods employed: Data on sex, age, diagnosis, date of admission, date of first release to the community, either by convalescent leave, direct discharge, or death, and dates of return to the hospital were collected for all first admissions during the above-mentioned time period. These data were put on punch cards, tabulated and analyzed on a cohort basis in order to obtain the probabilities of release, death and retention by age, sex, and mental disorder for specified period of time following admission.

Major Findings: (1) There has been an increased first admission rate to Warren State Hospital, 1916-50, which has occurred in all age groups, particularly in the age group 75 years and over. The average annual age-adjusted first admission rate for all mental disorders increased 48 percent from 51.6 per 100,000 population in the years 1916-25 to 76.5 in 1946-50. The rate for the age group 75 years and over increased 126 percent from 176.2 in the years 1916-25 to 398.7 in the years 1946-50.

(2) During the period 1916-50 first admissions with functional and syphilitic psychoses have experienced increased probabilities of being returned to the community alive, particularly in the first year following admission. For syphilitic first admissions the percent released alive in 1946-50 almost tripled compared to the percent released in 1916-25. Among functional psychosis first admissions the percent released alive in the later period was about 50 percent greater than in the earlier period. There was a sharp decrease in the probabilities of dying in the hospital for syphilitic first admissions during the first year of hospitalization, decreasing 68.6 percent in 1946-50 as compared to 1916-25.

(3) Patients with senile and cerebral arteriosclerotic psychoses have very small probabilities, 1 out of 7, of being returned to the community alive within the first year. Their death rates, particularly in the first few weeks and months following admission to the hospital in the period 1946-50 is no different than in the period 1916-25.

(4) Functional psychotics as well as other categories of patients who have not been released in the first year of hospitalization experience greatly decreased probabilities of release (about 60 percent) in going from the first to the second and subsequent years of hospitalization. Patients admitted in the period 1946-50 who have attained their second and third years of hospital life have approximately the same chances of being released in the following year as had similar groups of patients out of the earlier cohorts of admission.

Significance to Mental Health Research: This study presented for the first time follow-up data of all first admissions to a single State hospital, covering as long a period as 1916-1950 under admission policies that have been uniform throughout the period. The consecutive cases under study represent a more complete picture of mental hospital admissions than could be found in any private hospital or State hospital with a briefer history, or less stable administrative history or a less stable history of policies regarding admission. The increased probabilities of being released to the community and the decreased chances of dying in the hospital during the period 1916-1950 are important in getting community acceptance of a mental hospital as an active, dynamic medical facility and in doing away with the idea that once a patient is committed he is lost to his family and society forever. However, the data also show that first admissions with mental diseases of the senium still have very small chances of returning to the community alive and exceedingly high hospital mortality rates. With the increased number of admissions in the age group 65 and over this points to a public health problem of the first magnitude. In addition to these factual findings, this study raises a host of practical questions that must be answered to explain the differences observed and to provide the necessary facts for the formulation of public mental health programs directed toward prevention of illness and disability, treatment and rehabilitation.

Proposed Course of Project: Prepare a monograph giving detailed tabulations and charts on the probabilities of release, death and retention by age, sex, diagnosis and time period of admission.

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-80

11.

	ESTIMATED EXPENDITURE	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$8,900	1	1	2	1/3	1	1-1/3	-
FY 1956	7,100	1	1	2	1/3	1	1-1/3	-

12. Research /X/

13. Cooperation received from the Warren State Hospital, Warren, Pennsylvania, furnishing data to the National Institute of Mental Health.

14. None

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Biometrics Branch

3. Current Reports Section, Hospital Reports and Records Unit 4. _____ 5. NIMH-81

6. Study of age standardized first admission rates to State mental hospitals and to public institutions for mental defectives and epileptics, 1940 and 1950.

7. H. Goldstein, E. S. Pollack and B. H. Kroll

8. _____

9. Project: Study of age standardized first admission rates to State mental hospitals and to public institutions for mental defectives and epileptics by State, sex and diagnosis, 1940 and 1950.

Objectives: Develop a series of State, age standardized first admission rates to State mental hospitals and to public institutions for mental defectives and epileptics by sex and mental disorder.

Methods Employed: Data obtained on admissions to State mental hospitals and to public institutions for mental defectives and epileptics from the 48 States on the 1950 annual Census of Mental Patients. Similar data were secured for the year 1940 and age specific rates and crude rates computed for both years. The 1940 data were age adjusted using the April 1, 1950 decennial census population data by State for both sexes.

Major Findings: Project is still underway. Data have been tabulated but not analyzed to date.

Significance to Mental Health Research: Age standardized first admission rates to State mental hospitals and public institutions for mental defectives and epileptics for each State by sex and mental disorder will make inter- and intra-State comparisons for 1940 and 1950 undisturbed by the effect of differences in age distribution of the respective State populations. First admission rates to State mental hospitals and to public institutions for mental defectives and epileptics for the various States that have been published to date on a nation-wide basis have been crude rates with no adjustments having been made for variations in age composition of the populations from State to State. Comparisons of such rates on an interstate basis are not valid unless there is some assurance that the age distributions are comparable. These data will be very significant for studies of long-term trends of admission to the Nation's mental hospitals.

Proposed Course of Project: A monograph will be prepared of the results. It is expected that this tyoe of study will be repeated every 10 years when decennial census data become available.

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-81

11.

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$4,725	3	1	4	2/3	1/3	1	-
FY 1956	-	-	-	-	-	-	-	-

12. Research /X/

13. Cooperation received from the State mental hygiene departments of the 48 States and from St. Elizabeths Hospital in furnishing census data.

14. None

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Biometrics Branch

3. Experimental Statistics (Design & Analysis) 4. _____ 5. NIMH-82

6. Consultation in the Design and Analysis of Experiments

7. Samuel W. Greenhouse

8. _____

9. Project: Consultation in the design and analysis of experiments, including the development of statistical and mathematical methods necessary for appropriate application.

Objectives: (1) Wherever possible, to aid the investigators in designing an experiment so that he is reasonably assured of being able to answer the primary questions leading to the experiment.

(2) To utilize the most efficient and powerful statistical methods in the analysis of data.

Methods Employed: Available tools in modern statistical methodology. Also the development of new methods and the theory governing them wherever available methods are inappropriate.

Major Findings: _____

Significance to NIMH Research: To incorporate the principles of sound statistical practice in the research program of the Institute.

Proposed Course of Project: To continue consultation with those investigators already begun and to be available for such consultation if called upon by additional scientists. On the basis of services offered during the past three months, the demand for statistical consultation will probably increase as the program of the Institute progresses.

Examples of research projects in which consultations have been made are:

1. Construction of psychological personality test for use in distinguishing mothers of normal children from mothers of physologically abnormal children. (Drs. Schaefer and Bell)

2. Mathematical description of light thresholds in a dark room. (Dr. Carlson)

3. Differences between normal individuals and those with organic brain lesions - use of analysis of covariance. (Dr. Mirsky)

4. Identification of, and associated factors for, children mentally disturbed by the striking of a tornado. (Mr. Perry)

5. The use of lysurgic acid in treating schizophrenia. (Dr. Parloff)

6. Investigations into serum protein fractions in the normal guinea pig and the guinea pig injected with certain extracts. (Dr. Kies)

7. Investigation of mobility and density distribution of animals. (Dr. Calhoun)

8. Experiments on neural sections; normal, unoperated cats and operated cats. (Dr. Guth)

9. Investigation into patient - therapists interactions in the psychotherapeutic process. (Drs. Parloff and Iflund)

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-82

11.

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$ 6,900	6,900	-	6,900	2/3	-	2/3	-
FY 1956	18,500	15,000	3,500	18,500	2	1	2	-

12. RESEARCH /X/

13. _____

14. _____

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Professional Services Branch

3. _____ 4. _____ 5. NIMH-83

6. Program Planning and Development

7. Drs. Joseph M. Bobbitt, Leonard J. Duhl, Raymond F. Gould, Richard H. Williams

8. _____

9. The Professional Services Branch continued to fulfill its function in the fields of program planning, program development, the administration of special grants, budget review, specialized assignments with respect to program problems faced by the Institute, and the provision of consultation within the Institute to other parts of the Government and to other non-governmental groups.

During the year the personnel of the Branch has been brought up to full strength with the entrance on duty in June of 1954 of two professional staff members, Dr. Leonard J. Duhl, a psychiatrist, and Dr. Raymond F. Gould, a social scientist with training and career experience in the field of social work.

The Branch has continued to put major emphasis upon the definition of program areas and problems faced by the Institute and to do the preliminary and continuing work necessary to develop adequate program representation of these fields within the activities of the Institute. During the year, the following fields have received attention: communication of mental concepts, rehabilitation of the mentally ill, aging, juvenile delinquency, mental deficiency, and drug addiction among minors. The fields of aging, rehabilitation of the mentally ill, communication of mental health concepts, and drug addiction among minors all represent continued activities from previous years. While mental deficiency and juvenile delinquency have received some attention in previous years, staff turn-over and vacancies have made impossible consistent and continued program development in these fields. This year, however, it was possible to assign a staff member to each of these areas and to complete much of the preliminary groundwork which must be accomplished prior to developing definitive program suggestions and/or investigations or demonstration projects. It is anticipated that the coming year will see important developments in these areas. Major effort has been continued in the fields of aging, rehabilitation of the mentally ill, and communication of mental health concepts. In the field of drug addiction among minors, close liaison and collaboration have been maintained with the Inter-Bureau Committee on PHS Policy on Narcotic Drug Addiction as well as the continued liaison work on the still current research activities in this field being conducted on a grant basis at the Research Center for Human Relations at New York University. During the latter part of the year some formal attention has been directed toward some

problems of long-range planning in the mental health field. Effort has thus far been devoted primarily to a survey of the kinds of material which must be assembled and types of prediction which are possible in order to produce an envisagement of the needs and kinds of activities which will characterize public mental health activities in the somewhat distant future.

The Branch has also contributed to the preparation of testimony upon the part of the Director of the Institute for the Subcommittee To Investigate Juvenile Delinquency, Senate Judiciary Committee, and it also played an important role in developing the data and material required by the Office of the Secretary with respect to legislative proposals affecting the Institute's activities.

The Branch has had the cooperation of individuals and organizational units of the Institute in developing and following investigations relevant to program development activities. Personnel from the Community Services Branch, Biometrics Branch, Laboratory of Socio-environmental Studies, and the Child Development Section of the Laboratory of Psychology have all played a role in this connection.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-83

11.

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	66,360	4	4	8	4	4	8	--
FY 1956	66,360	4	4	8	4	4	8	--

12. BUDGET ACTIVITY: Administration

13. _____

14. _____

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH-83

16. Bobbitt, Joseph M. "Psychology in the Public Health Service". In Survey of Clinical Practice in Psychology, pp. 145-159, International University Press, N.Y.: 1954.

17. Dr. Richard H. Williams

Consultant to Group for the Advancement of Psychiatry
Consultant to Southern Regional Education Board
Principal invited speaker, American Occupational Therapy Association, annual meeting, 1954

Dr. Joseph M. Bobbitt

Chairman, Committee on Interprofessional Relations, Division of Clinical and Abnormal Psychology, American Psychological Association
Member, Committee on Relations with the Social Work Profession, American Psychological Association

R:P:C: - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Professional Services Branch

3. _____ 4. _____ 5. NIMH-84

6. Special Grants

7. Drs. Joseph M. Bobbitt, Leonard J. Duhl, Raymond F. Gould, Richard H. Williams

8. Drs. Nancy Bayley, John Clausen, Hyman Goldstein, Morton Kramer, Paul H. Stevenson

9. Special grants are awarded for the purpose of supporting research by persons outside the Government on problems relevant to the program needs and program development activities of the Institute. These awards are made upon the basis of recommendation of the National Advisory Mental Health Council after careful staff study and recommendation within the Institute by the Executive Staff. During the year 1954 five new special grants were made in the following fields: The Mental Health Aspects of Disasters, Alcoholism, Comparison of In-patient and Out-patient Treatment with Respect to Effectiveness and Cost, The Effects of Change in the Mother Figure During Infancy on Personality Development, and Mental Health Film Evaluation. These new grants represent a total of $131,631. Six projects previously supported have received recommendation for continuing or supplemental support from the National Advisory Mental Health Council. The fields involved are the following: Rehabilitation of the Mentally Ill in a Hospital Setting, Rehabilitation of the Mentally Ill in a Community Setting, Drug Addiction Among Minors, and the Evaluation of Mental Health Films. The total for these grants is $138,091. On December 31, 1954 eleven special grants were active.

Each of the grants mentioned above has been followed by one or more staff members of the Institute, either personnel within the Professional Services Branch or personnel located outside the Branch, who cooperated with this activity by taking responsibility for the liaison

work in areas of their special competence. Every effort is made to maintain current information concerning the status of activities and the progress of each grant. Project site visits are made frequently and extensive correspondence carried on with the grantees. Progress reports, statements of the findings, and information of value to operating activities are prepared in appropriate form and distributed within the Institute for the utilization of those to whom this information has value. Extremely good cooperation and acceptance of the material thus produced has been the rule, and the results of this research are being integrated into all relevant parts of the Institute's activities.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-84

11.

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	300,000							
FY 1956	300,000							

12. Research

13. Biometrics Branch, NIMH
Child Development Section, Laboratory of Psychology, NIMH
Community Services Branch, NIMH
Laboratory of Socio-environmental Studies, NIMH
Program Services Section, NIMH
Research Grants Branch, NIMH

14. _____

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health

2. Office of the Director

3.

4.

5. NIMH-85

6. Administration

7.

8.

9. Project Description

This activity provides for the planning, development, direction and administration of the programs of the National Institute of Mental Health, including review of current operations, supervision, and provision of necessary administrative services.

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-85

11. Budget Data

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$103,130		21	21		21	21	0
FY 1956	103,130		21	21		21	21	0

12. Budget Activity

Administration

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheets

15. NIMH-85

16. Publications of Robert H. Felix, Director, National Institute of Mental Health

"The Mental Health Program of the Public Health Service"

Article published in South Dakota Health Highlights, March 1954 published by the South Dakota State Department of Health.

"Emotional Hazards in Driving"

Published in spring and summer issues of the State and local American Automobile Association magazines.

17. List of Honors awarded to Robert H. Felix, Director

Member, Commission on Mental Health Training and Research, Southern Regional Education Board, (for 16 States).

Public Health Service Representative on Centennial Planning Committee of the Department of Health, Education, and Welfare for St. Elizabeths Hospital.

Member, Board of Directors of Mental Hygiene Society of Maryland, Inc.

Member, Advisory Committee to Director of Public Health for the District of Columbia concerning policies to be followed by Legal Psychiatric Services of the Department.

Member, Advisory Council of the Greater Washington Educational Television Association, Inc.

R.P.C. - 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Training and Standards Branch

3. Psychiatric Social Work 4. Bethesda, Maryland 5. NIMH-86 SERIAL NO.

6. Training program in psychiatric social work

7. S. D. Vestermark, M.D., Chief, Training and Standards Branch

8. Milton Wittman, Training Specialist

9. PROJECT DESCRIPTION

Program: Training program in psychiatric social work under the National Mental Health Act.

Object: To increase the number of psychiatric social workers being trained in the United States; to improve the quality of training programs in psychiatric social work; to increase the number of administrators, teachers, consultants, researchers and supervisors in psychiatric social work; to enable recognized professional organizations and associations to undertake development of improved standards of training in psychiatric social work.

Methods employed: Direct teaching grants to training centers to enable employment of teachers in psychiatric social work, psychiatry and psychology in graduate schools of social work; grants for traineeships to students at the master's, third year, and doctoral levels of education in social work; grants to the Council of Social Work Education and American Association of Psychiatric Social Workers for developmental activities and institutes directed to improvement of training.

Summary of program in 1954: Grants were made to 36 graduate schools of social work. Included in these were grants to 8 graduate schools of social work for the support of teaching and traineeships in third year and doctoral education. A five-year grant was made to the Council of Social Work Education to support a program of consultation to all 52 graduate schools of social work in the United States, which will permit a long needed review and assessment of changes in curriculum. Another grant was made to the Council of Social Work Education for a project undertaken jointly with the American Association of Psychiatric Social Workers for the study of third-year field work in the United States. A grant was made to the American Association of Psychiatric Social Workers for the purpose of holding an institute on psychiatric social work in mental hospitals. This institute was held at Lake Forest, Illinois, in June 1954 and represented the first time that psychiatric social workers in mental hospital programs have been brought together to discuss problems on a national scale. A report of this institute will be published in January 1955 and it is anticipated that a number of regional follow-up institutes will result from this initial effort.

NIMH-86
SERIAL NO.

Following the announcement of the pilot and evaluation study program and the career teaching program, a number of graduate schools currently receiving grants evinced strong interest in and plan to make application for funds in both of these areas. A small grant has been made in one training center to permit the development and expansion of the training of social group workers in psychiatric settings. A number of other schools of social work have evinced interest in this development and plan to submit requests for expansion of training in this area.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-86
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$ 15,000	1	1	2	1	1	2	
FY 1956	$ 15,000	1	1	2	1	1	2	

12. BUDGET ACTIVITY: Review and Approval

13. None

14. None

15.
SERIAL NO.

16. Not appropriate

17. Not appropriate

R.P.C. - 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Training and Standards Branch

3. Psychology 4. Bethesda, Maryland 5. NIMH-87
SERIAL NO.

6. Training program in clinical psychology

7. S. D. Vestermark, M.D., Chief, Training and Standards Branch

8. Max M. Levin, Ph.D., Psychologist, Training and Standards Branch

9. PROJECT DESCRIPTION

The training grants program in clinical psychology has continued to assist in the establishment, expansion and improvement of graduate training in clinical psychology. Teaching grants and traineeships have been provided to 45 graduate departments of psychology and to 20 internship centers for pre-doctoral and post-doctoral training. A total of 154 traineeships were provided during the year. In addition, a grant was made to the American Psychological Association to continue its program of setting standards and accrediting training programs.

A special grant has been made to Peabody College for the training of research and clinical psychologists who specialize in the area of mental deficiency.

Support was provided to hold a Conference on the Functions and Training of School Psychologists.

Consultation on matters relating to the training of clinical psychologists has been provided to Departments of Psychology, State Departments of Mental Hygiene, American Psychological Association, and the Southern Regional Education Board in conjunction with its survey and conference on mental health resources in the South, and the United States Civil Service Commission.

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-87
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$ 15,000	1	1	2	1	1	2	
FY 1956	$ 15,000	1	1	2	1	1	2	

12. BUDGET ACTIVITY: Review and Approval

13. None

14. None

15.
SERIAL NO.

16. Not appropriate

17. Not appropriate

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
2. Training and Standards Branch
3. Psychiatric Nursing
4. Bethesda, Maryland
5. NIMH-88 SERIAL NO.
6. Training program in psychiatric nursing
7. S. D. Vestermark, M.D., Chief, Training and Standards Branch
8. Esther A. Garrison, Training Specialist, Psychiatric Nursing
9. PROJECT DESCRIPTION

Program: Training program in psychiatric nursing (including mental health) under the National Mental Health Act.

The training program in psychiatric nursing has continued to assist in the development (establishment), expansion, and improvement of training programs in psychiatric nursing. Emphasis is on the preparation of increasing numbers of nurses for leadership positions in this field, e.g., teachers, supervisors, clinical specialists, researchers and consultants. Teaching grants and traineeships are currently being provided to 25 University training centers. A total of 180 traineeships were provided this fiscal year. In addition, a grant was made to the National League for Nursing to provide for the work of consultants in improving the education of basic and graduate professional students in psychiatric nursing, and of psychiatric aides.

A special grant was made to the University of North Carolina to study the problems and methods involved in incorporating needed aspects of social and psychiatric science into undergraduate nursing education. Other special grants were made to two University schools to incorporate into the learning experiences of students in basic nursing programs sound mental health and psychiatric principles in order to improve the nursing care of patients.

Consultation on matters related to the training of nurses in this specialized field has been provided to collegiate schools of nursing, Schools of Public Health, clinical training centers (mental hospitals, public health agencies, etc.), The National League for Nursing, The American Nurses Association, the Southern Regional Education Board in conjunction with its survey and conference on mental health resources in the South, and the Office of Vocational Rehabilitation.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-88
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS PROF	OTHER	TOTAL	MAN YEARS PROF	OTHER	TOTAL	PATIENT DAYS
FY 1955	$ 23,000	2	2	4	2	2	4	
FY 1956	$ 23,000	2	2	4	2	2	4	

12. BUDGET ACTIVITY: Review and Approval

Training Activities - 2 positions - $9,000 each year

13. None

14. None

15.
SERIAL NO.

16. Not appropriate

17. Not appropriate

R.P.C. - 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Training and Standards Branch

3. Psychiatry and Public Health 4. Bethesda, Maryland 5. NIMH-89 SERIAL NO.

6. Training in psychiatry and public health and in-service training

7. S. D. Vestermark, M.D., Chief, Training and Standards Branch

8. Two vacant positions

9. PROJECT DESCRIPTION

This aspect of the training program continues to assist in the establishment, expansion, and improvement of graduate training in psychiatry and mental health teaching and training in schools of public health, and psychiatric teaching and training in medical schools. The objectives are to improve the quality of mental health training for medical students and for graduate students of psychiatry and potential public health officers. An additional important objective is to increase the number of psychiatrists being trained in the United States.

Teaching grants are made to training centers to increase the amount and quality of training and to provide the intensive supervision required in the preparation of psychiatric personnel. Specific attention is directed to problem areas where specific needs are acute; namely, the development of teaching, research, and service personnel. Further attention is being directed to the training of personnel for work in the rapidly developing area of community mental health. The teaching of mental health subjects in schools of public health is assisted so that health personnel may be better prepared to deal with the public health aspects of mental health and disease.

The training grant program assists in the expansion and improvement of teaching and training of personnel for such neglected areas as rehabilitation, juvenile delinquency, and mental deficiency. Special attention is directed toward assisting States or groups of States in surveying their facilities and resources for training and research in the field of mental health.

Consultation on matters relating to the training of medical students, psychiatrists, and public health personnel is given to departments of psychiatry, to schools of public health, State departments of public health and mental hygiene, and to the many national professional organizations.

NIMH-89
SERIAL NO.

Teaching grants were provided to 53 medical schools for undergraduate psychiatric training. Teaching grants and traineeships were provided to 86 training centers in psychiatry and to 8 schools of public health. A total of 244 traineeships was provided during the year.

Funds are utilized by the National Institute of Mental Health to provide in-service training for certain selected personnel to increase their skills in the area of research. Many of these people come to the National Institute of Mental Health requiring additional operating skills which are furnished through the in-service training program.

R.P.C. -2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-89
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS PROF	OTHER	TOTAL	MAN YEARS PROF	OTHER	TOTAL	PATIENT DAYS
FY 1955	$ 59,000	6	2	8	3	2	5	
FY 1956	$ 67,000	7	3	10	4	2½	6½	

12. BUDGET ACTIVITY: Review and Approval

Training Activities - 6 positions - $ 41,000 each year

13. None

14. None

15. _____
SERIAL NO.

16. Not appropriate

17. Not appropriate

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health

2. Research Grants & Fellowships Branch

3.

4. Bethesda

5. NIMH-90

6. Research Grants & Fellowships Program

7. Philip Sapir, Chief

8. Richard R. Willey, Executive Secretary, Mental Health Study Section

9. During the calendar year 1954, a total of 194* new research proposals were reviewed and evaluated by the National Advisory Mental Health Council, plus 49* projects for which continuation or supplemental grants were requested. 65* projects for which support had been previously committed were also awarded grants. A total of 70* new proposals were approved and paid, representing 36% of those considered, and bringing the total number of projects active on December 31, 1954, to 208*.

Funds available for research grants during fiscal 1955 were $3,587,000,* all of which were expended. During fiscal 1956, it is hoped that the same amount will be available to continue this program at its present level.

Project-site visits were made by the Branch Chief or by members of the Study Sections to approximately 40% of the research projects proposed in order that first-hand information might be available on the exact circumstances under which the proposed work would be carried out.

For fiscal year 1955, $187,000 has been made available for research fellowships. In calendar year 1954, the Mental Health Specialty Board of this Institute reviewed 82 applications, of which 70 were approved and 49 paid. Of the 49 fellowships awarded, 4 were predoctoral, 38 post-doctoral, and 7 special. 20 of these awards represented renewals for a second year.

In order to assist in the review of applications for Mental Health Career Investigator Grants, a special Selection Committee, composed of five outstanding scientists in the mental health field, was established. This committee, like the Mental Health Study Section, is administered by the Research Grants and Fellowships Branch.

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*Including applications for special grants, administered by the Professional Services Branch, for which $300,000 was allocated in fiscal year 1955 from regular research grant funds.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

NIMH-90
SERIAL NO.

11.

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$35,000	2	2	4	2	2	4	-
FY 1956	$51,800	4	3	7	$3\frac{1}{2}$	3	$6\frac{1}{2}$	-

12. REVIEW & APPROVAL /x/

13. COOPERATION WITH DIVISION OF RESEARCH GRANTS

14. --NOT APPLICABLE

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Community Services Branch
LABORATORY OR BRANCH

3. _____

4. _____

5. NIMH - 91
SERIAL NO.

6. Technical and Professional Services to States
PROJECT TITLE

7. Curtis G. Southard, M.D.
PRINCIPAL INVESTIGATOR

8. Headquarters and Regional Office Staff consisting of:
10 Psychiatrists, 5 Clinical Psychologists, 5 Psychiatric Social Workers, 4 Mental Health Nurses, 4 (part-time) Health Educators
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION (SEE INSTRUCTIONS AND SAMPLES)

Objective: To develop and assist "the States in the use of the most effective methods of prevention, diagnosis, and treatment of psychiatric disorders.

Methods Employed

1. Through technical services and professional consultation

a. Technical services and professional consultation are provided through the regional offices of the Department of Health, Education, and Welfare by the Community Services Branch with the assistance of other Branches of the National Institute of Mental Health. In this way the statistical, research, informational, training, and other resources of the NIMH are made available to the States.

(1) The headquarters staff is responsible for planning, coordinating, and administering the community services program of the NIMH;

reviewing State mental health plans and budgets; recruiting and assigning Branch personnel to the Regional offices, the Mental Health Study Center, and the D. C. Juvenile Court; and providing such personnel with program orientation, consultation in special areas, information about technical and professional developments, and technical supervision.

The headquarters staff also collaborate with other Branches of NIMH in the total program, and cooperate with other Government agencies, State commissions and other interested groups in developing public interest in such areas as aging, alcoholism, mental deficiency, vocational rehabilitation of the mentally ill, juvenile delinquency, and school health.

(2) The mental health consultants assigned to the regional offices represent the NIMH and are under the administrative direction of the regional medical directors. In addition to reviewing the State mental health plans and budgets, these consultants keep the headquarters staff informed about developments in the regional and State mental health programs; provide and receive consultation from personnel in other regional office programs; consult with other public and private regional organizations interested in mental health; and provide technical services and professional consultation to State mental health authorities and through them to other State and local agencies.

(3) Advisory Groups

a. The Community Services Committee reviews the Branch's policies and program activities and makes recommendations to the National Advisory Mental Health Council for improving services to States. This committee consists of 12 citizen consultants in mental health administration, psychiatry, psychology, sociology, social work, nursing, education, public health, and representatives of mental hygiene societies and other groups actively engaged in mental health activities.

b. The Mental Hospital Services Advisory Committee assists the Branch staff with problems of services to mental hospitals and institutions for the mentally defective.

(4) Administrative Services

The PSS provides the Branch with administrative services for State mental health grants. This arrangement is economical and insures that mental health grants are better coordinated with other grants administered through the regional offices.

2. By means of grants in aid: States use these funds largely for developmental work, which enables them to try out new program activities and demonstrate whether they are valuable enough to warrant State and local support.

Major Findings

In 1954 States made notable progress as shown by the following accomplishments:

1. Total funds available for community mental health activities increased even though reduction in grant-in-aid funds has handicapped programs in a number of States.

In 1954, 15 million dollars was available to States for community mental health services, representing an increase of $600,000 over 1953 in spite of a reduction of $775,000 in grant-in-aid funds. The increase, however, was unevenly distributed. Thirteen States had approximately the same amount of money as in 1953; 19 States had an increase of 10 percent or more; and 21 States had a decrease of 10 percent or more.

The preliminary budget for 1955 shows $16,900,000 budgeted by the States, which indicates a significant increase over 1954. Seven States (N.Y., Calif., Ill., N.J., Mich., Penn., and Va.) account for $1,800,000 of the increase. Analysis of this data reveals that 22 States and Territories have approximately the same amount of money available in 1955 as in 1954; twenty-four States report 10 percent or more available, and in seven States there is a decrease of 10 percent or more.

2. It has become the established pattern that professional leadership at State level is necessary. Fifty of the 53 States and Territories have personnel at State level to plan and administer their programs. Two hundred and sixty-four full-time and 62 part-time personnel are employed at State level.

3. Every year almost 60 percent of mental health funds spent by the State goes into clinics. While Federal funds assisted only 288 clinics in 1954 as compared to 322 in 1953, reports received from the States show a total of 1280 clinics in operation as compared to 1164 in 1952. Many of these clinics are inadequately staffed and some are open for service only part time.

4. Education of professional groups was a part of most programs in 1954 and is included in the majority of State plans for 1955. States have expanded mental health staffs to give more in-service training, hold institutes and case conferences, and develop more formal courses of instruction for educational and public health personnel, welfare workers, and vocational rehabilitation counselors.

5. Activity in general community education has steadily increased, and there is reason to believe that the quality has improved. More trained educators are being placed in State mental health programs; teachers, public health and other agency personnel are utilizing more consultation of mental health personnel.

6. Interest in developing improved and expanded mental health programs in States has been shown by governors, legislators, and other public leaders. An example is the Southern Regional Education Board's study of mental health research and training facilities and personnel needs at the request of the Southern Governors' conference. Regional office personnel

participated by providing information and consultation both in the early planning and later development of this study,which resulted in surveys of the mental health training and research activities in 16 Southern States.

A similar regional study is in the process of development in the Western States and in other regions of the country. It is hoped that joint programs for training,research,and improvement and extension of community services will come out of these meetings.

New legislation has been enacted in New York and is being introduced in California and Connecticut to expand community mental health services. The New York legislation sets up community mental health centers throughout the State. The State will make grants to its political subdivisions on a matching basis up to $1 per capita.

In addition to assisting the States develop and improve mental health services, as pointed out above, the staff engaged in a number of other activities:

Eleven institutions were studied, and the findings and recommendations for improvement of patient care were submitted to the respective States.

A staff member participated in the Community Services Committee's study of the literature on evaluation of mental health activities. (The abstracts and references with conclusions and recommendations are being published in book form under the title "Evaluation in Mental Health.")

A study of residential treatment centers for emotionally disturbed children was initiated with the assistance of regional office staff. Results are to be reported at the February 1955 meeting of the Community Services Committee.

Two staff members are working on a design for a pilot study of mental health practices in schools of the United States.

Staff members participated in conferences with other national organizations also interested in community mental health, such as the National Association of Mental Health, the Southern Governors' Conference on Training and Research in Mental Health, the conferences of chief psychologists and social workers in State mental health programs, the Office of Education's Conference on Exceptional Children, the Thayer Conference on Training and Qualifications for School Psychologists, etc.

Many States have expressed concern over the lack of staff caused by budgetary restrictions and shortage of trained people and low salaries. One program area that has suffered in the past year is granting of training stipends for personnel who upon completion of training return to their respective States or communities. In 1954 forty-six individuals received

training stipends allocated by States from grant-in-aid funds as compared with 67 in 1953.

Another concern expressed by a number of States is fluctuation in the amounts of money available for support of established programs and expansion of programs from year to year. Need is also expressed for research and evaluation in such areas as epidemiology of mental disorders, treatment methods, educational materials, community surveys, interagency cooperation and techniques of prevention and rehabilitation.

There is need for additional financial assistance and professional consultation to implement special projects and studies in patient care and hospital administration and to expand hospital consultation services through the regional offices. Additional staff are also needed to provide more adequate resources for growing, control activities.

R.P.C. - 2
December 1954 Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH - 91
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS PROF	OTHER	TOTAL	MAN YEARS PROF	OTHER	TOTAL
FY 1955	$341,700	25	21	46	22	21	43
FY 1956	656,000	52	37	89	47	32	79

In addition, $2,325,000 grant-in-aid funds were allocated to the States on a formula basis in 1955. The tentative allocation for 1956 is $3,000,000.

12. BUDGET ACTIVITY:

RESEARCH [ ] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [X]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO. (S) IF WITHIN NIH)

..P.C. - 1
Dec. 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health 2. Community Services Branch
INSTITUTE LABORATORY OR BRANCH

3. _____ 4. College Park, Md. 5. NIMH-92
SECTION LOCATION SERIAL NO.

6. Demonstration Project: Mental Health Study Center
PROJECT TITLE

7. Alan D. Miller, M.D.
PRINCIPAL INVESTIGATOR

8. Other Prof. Staff: 2 Psychiatric Social Workers, 1 Mental Health Nurse, 1 Psychiatrist, 1 Psychologist,
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objective: To conduct studies in the area of community mental health, the results of which are transmitted to the States and communities for nationwide use.

Project activities

A. Projects continued from 1953

1. Study of a new method of selecting patients for mental health clinic care

2. A study of self-referred patients

3. Development of a mental health clinic record keeping system

4. Examination of the school adjustment of the 310 high school seniors, relating this to the test data obtained three years ago. (Reports of the first study were published in PUBLIC HEALTH REPORTS 67, No. 12, December 1952 - "Mental Health Screening of School Children" and PUBLIC HEALTH MONOGRAPH No. 7, December 1952 - "Identification of Maladjusted School Children")

B. Projects begun in 1954

1. A community study of reading disability

2. The community experience of patients discharged from mental hospitals.

A research analyst, a secretary, and an additional psychologist are needed to carry out the above projects and others being planned.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH - 92
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS PROF	OTHER	TOTAL	MAN YEARS PROF	OTHER	TOTAL	PATIENT DAYS
FY 1955	55,300	6	3	9	6	3	9	
FY 1956	72,000	8	4	12	7	4	11	

12. BUDGET ACTIVITY:

RESEARCH / X / ADMINISTRATION / /

REVIEW & APPROVAL / / TECHNICAL ASSISTANCE / X /

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO. (S) IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. NIMH
INSTITUTE

2. Community Services Branch
LABORATORY OR BRANCH

3. _____
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. NIMH - 93
SERIAL NO.

6. District of Columbia Juvenile Court
PROJECT TITLE

7. _____
PRINCIPAL INVESTIGATOR (S)

8. _____
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

A psychiatrist, a clinical psychologist, and a secretary are assigned on a reimbursable basis to the District of Columbia Juvenile Court to operate a clinic under the technical and professional supervision of the Branch.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH - 93
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS		
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL
FY 1955	$18,600	2	1	3	2	1	3
FY 1956	18,600	2	1	3	2	1	3

12. BUDGET ACTIVITY:

RESEARCH [ ] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [X]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO. (S) IF WITHIN NIH)

R.P.C. - 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Clinical Biochemistry and Physiology
LABORATORY

3. _____
SECTION

4. _____
LOCATION

5 94 (c)
SERIAL NO.

6. Role of the Adrenal Medulla in Reaction to Stress
PROJECT TITLE

7. Dr. Norman P. Goldstein and Dr. Marian W. Kies
PRINCIPAL INVESTIGATORS

8. Dr. Robert L. Bowman, National Heart Institute
OTHER INVESTIGATORS

9. Project: The project is the chemical determination of the amounts of adrenaline and noradrenaline in blood in normal and psychiatric subjects.

Objectives: The objective of this project is to develop methods for studying adrenal medulla responsiveness to psychic stress and to apply this to a study of the role of adrenaline and noradrenaline in essential hypertension and other psychosomatic conditions.

Methods Employed: Fluorometric methods are being tested to determine their sensitivity in measuring adrenaline and noradrenaline and a modification of existing methods is being undertaken.

Major Findings: The major finding of this project during the past year has been to evaluate the usefulness of a newly designed fluorometer in overcoming the deficiencies and difficulties of existing methods for determining adrenaline and noradrenaline.

Significance to Mental Health Research: It is recognized that the adrenal medulla is an important link in the organism's immediate reaction to stress. In the past investigation of the precise role of the adrenal medulla was hampered by the extreme difficulty associated with measurement of the blood levels of adrenaline and noradrenaline.

The immediate goal of this investigation is to develop an adequate method for their chemical estimation. A method available in the literature appears to be satisfactory except for its limit of sensitivity. Dr. Bowman of the Heart Institute has cooperated with us in the design of an instrument which should increase the sensitivity of this method sufficiently to make it feasible for use in our investigations.

With this method we plan to study essential hypertension and other psychosomatic diseases in terms of the adrenal medulla's response to both psychological and physiological stress.

Proposed Course of Project: Considerable proportion of the next calendar year will be devoted to improvement in the existing methods for determining adrenaline and noradrenaline. The approach to this is based upon a new instrument of greater sensitivity which is being constructed in conjunction with Dr Bowman of the National Heart Institute. With an improved method, determinations of adrenaline and noradrenaline will be undertaken in relationship to fluctuations in levels of these substances in the blood of hypertensive and normal subjects under standard conditions of stress.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 94 (c)

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN DAYS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$10,950	2	3	5	2/3	1	1 2/3	
FY 1956	$10,950	2	3	5	2/3	1	1 2/3	

12. BUDGET ACTIVITY:

RESEARCH /x/

13. National Heart Institute, Laboratory of Technical Development
NHI-36

14. ---

R.P.C. - 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Clinical Biochemistry and Physiology
LABORATORY

3. _____
SECTION

4. _____
LOCATION

5. 95 (c)
SERIAL NO.

6 Effect of Stress on the Antidiuretic Activity of the Blood in Normal and Schizophrenic Subjects.
PROJECT TITLE

7. Dr. Norman P. Goldstein, Dr. Marian W. Kies, and Dr. Edward Evarts
PRINCIPAL INVESTIGATORS

8. _____
OTHER INVESTIGATORS

9. Project: A study of the role of the hypothalamus in normal and schizophrenic subjects as evidenced in the control of water metabolism.

Objectives: The objective of this project is to develop methods for determining the level of antidiuretic substance in blood and to study the responsiveness of the hypothalamus in normal and schizophrenic subjects under standard conditions of stress.

Methods Employed: A study of urine output pH chlorides specific gravity under standard basal conditions and following the administration of a stress-producing drug such as lysergic acid diethylamide.

Major Findings: The major finding of this project during the past year has been that of ascertaining the effect of lysergic acid diethylamide administration on diuresis under standard conditions in normal subjects.

Significance to Mental Health Research: Recent reports in the medical literature have indicated that there is an increase in the antidiuretic substance of the blood in response to noxious stimuli. The significance of this is that the antidiuretic hormone of the posterior pituitary gland may function as an important link in response of the organism to stress. It is proposed to test this in both normal human subjects and schizophrenic individuals by attempting to correlate the level of antidiuretic activity of the blood and the emotional responses of the subjects to various types of stress.

Antidiuretic substance production can be studied indirectly through the effect of various drugs environmental conditions etc. on controlled water diuresis Preliminary experiments on normal controls receiving lysergic acid have indicated stimulation of

antidiuretic substance production by the drug. These results are compatible with the hypothesis that some of the effects of lysergic acid arise through hypothalamic stimulation.

Proposed Course of Project: A considerable proportion of the next calendar year will be devoted to attempts to improve the assay methods for the antidiuretic substance in blood. Attempts will also be made to ascertain if patients with different psychiatric and psychosomatic illnesses differ in their antidiuretic response to the administration of lysergic acid diethylamide and other drugs

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10 NIMH 95 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$14,000	3	3	6	1	1	2	300
FY 1956	$14,000	3	3	6	1	1	2	300

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

14 IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Clinical Biochemistry and Physiology
LABORATORY

3. _____
SECTION

4. _____
LOCATION

5. 96 (c)
SERIAL N

6. Studies of the Biochemical Factors Involved in the Development of Tolerance to Narcotic Drugs and the Action of Narcotic Drug Antagonists
PROJECT TITLE

7. Julius Axelrod
PRINCIPAL INVESTIGATOR

8. _____
OTHER INVESTIGATOR(S)

Project: The phenomena of tolerance to narcotic drugs has been a subject of numerous investigations, but no adequate explanation has thus far been evolved. Tolerance could conceivably result from an increased metabolism of narcotic drugs (adaptive enzyme formation) or a depletion of receptor sites upon which the drugs interact. The activity of the various enzyme systems which metabolize narcotic drugs will be examined in animals which have been made tolerant to morphine. The effect of N allyl normorphine (an antagonist to narcotic drugs) on the various enzyme systems which metabolize narcotic drugs will also be studied. It is hoped that the information obtained from these investigations may give some explanation for the phenomena of tolerance cross tolerance and antagonism to narcotic drugs

This project will be initiated January 1955.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 96 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$1,700	1	0	1	1/6*	0	1/6*	
FY 1956	$5,200	1	1	2	1/3	1/3	2/3	

* Although investigator devotes 1/3 of time to project, it was not initiated until January 1955.

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health

2. Laboratory of Clinical Biochemistry and Physiology

3. SECTION

4. LOCATION

5. 97 (c) SERIAL NO.

6. The Physiological Disposition and Metabolic Fate of Drugs Affecting the Nervous System.
PROJECT TITLE

7. Julius Axelrod Edward Evarts
PRINCIPAL INVESTIGATORS

8. Drs. Nathan Eddy and Joseph Cochin Section on Analgesic Drugs, NIAMD
OTHER INVESTIGATOR(S)

Projects: Morphine: Attempts will be made to develop a specific and sensitive method for the estimation of morphine in biological material. Plasma levels rate of biotransformation urinary excretion and metabolism of morphine will be investigated. A comparative study on the physiological disposition of morphine in normal subjects and addicts will be made. Such a study will show whether or not addiction alters the metabolic fate of morphine in man. The relationship between plasma levels and analgesia will be examined. The effect of morphine antagonists (N ally normorphine) on morphine metabolism will also be studied.

Lysergic Acid Diethylamide: It is planned to develop a sensitive and specific method for the estimation of lysergic acid diethylamide in biological materials. Such a method will then enable us to study the plasma levels, tissue distribution urinary excretion and rate of biotransformation of the drug The relationship between plasma levels and physiological effects of lysergic acid diethylamide will also be examined The relationship between the plasma level of lysergic acid diethylamide and clinical effects of the drug will also be studied We will attempt to elucidate the metabolic fate of LSD. in the intact animal and at a cellular level. Such studies may give insight to the mechanism of action of LSD and will provide basic information concerning the metabolic pathways of lysergic acid derivations.

Studies on morphine metabolism will be carried out in collaboration with Drs. Nathan Eddy and Joseph Cochin, Section on Analgesic Drugs, National Institute of Arthritis and Metabolic Diseases.

This project will be initiated in 1955.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 97 (c)
SERIAL NO.

11. BUDGET DATA: [illegible]

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS						PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$3,900	2	0	2	1/3*	0	1/3*	
FY 1956	$8,000	2	1	3	2/3	1/3	1	

* Although investigators devote 1/3 of their time to project, it was not initiated until January 1955

12. BUDGET ACTIVITY:

RESEARCH [x] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1).

Section on Analgesic Drugs National Institute of Arthritis and Metabolic Diseases

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH).

R.P.C. - 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1 INSTITUTE
National Institute of Mental Health

2. LABORATORY
Laboratory of Clinical Biochemistry and Physiology

3 _____
SECTION

4. _____
LOCATION

5. 98 (c)
SERIAL NO.

6. CELLULAR MECHANISMS IN THE METABOLISM OF DRUGS AFFECTING NERVOUS SYSTEM
I. Enzymes Involved in Metabolism of Narcotic Drugs
II. Studies on Glucuronide Synthesis
PROJECT TITLE

7. Julius Axelrod
PRINCIPAL INVESTIGATOR

8. Dr. Kurt Issanbacker, Clinical Investigations Branch, National Institute of Arthritis and Metabolic Diseases.
OTHER INVESTIGATOR(S)

Project:

I: Enzymes Involved in Metabolism of Narcotic Drugs. At present there is little information concerning the enzymes involved in the metabolism of narcotic drugs. It is planned to investigate the enzymes involved in the transformation of such drugs as codeine, morphine, and meperidine. This project will be concerned with the various metabolic pathways catalyzed by the enzymes, intracellular localization, biochemical mechanisms, specificity and distribution of the enzymes. It is hoped that this investigation will contribute to enzyme chemistry and metabolism and perhaps shed some light on the mode of action of narcotic drugs.

II: Studies on Glucuronide Synthesis: A major detoxification "mechanism" for drugs and hormones involves conjugation with glucuronic acids. We (Strominger, Axelrod Kalcar and Maxwell) have isolated an enzyme system which converts uridine diphosphate glucose to uridine diphosphate glucuronic acid (UDPGA). Another enzyme system in the microsomes of the liver was found which can transfer the glucuronic acid of UDPGA to morphine. The extent to which the microsomal enzyme system can transfer "active" glucuronide to other acceptors such as corticoid steroids, adrenaline, narcotic and analgesic drugs will be investigated We will also attempt to purify this enzyme system and study its mechanism of action.

This project will be initiated in January 1955.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

NIMH
10. 98 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS PROF	OTHER	TOTAL	MAN YEARS PROF	OTHER	TOTAL	PATIENT DAYS
FY 1955	$1,700	1	0	1	1/6*	0	1/6*	
FY 1956	$5,200	1	1	2	1/3	1/3	2/3	

* Although the investigator devotes 1/3 of his time to the project, it was not initiated until January 1955

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

NTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1).

Clinical Investigations Branch National Institute of Neurological Diseases and Blindness.

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

Analysis of NIH Program Activities

Project Description Sheet

.. National Institute of Mental Health
INSTITUTE

2. Laboratory of Clinical Biochemistry and Physiology and Laboratory of Neurophysiology
LABORATORY OR BRANCH

. Clinical Physiology
SECTION

LOCATION (IF OTHER THAN BETHESDA)

5. 99 (c)
SERIAL NO.

. Effects of a Series of Indole Derivatives on Neural Transmission in the Visual System of the Cat
PROJECT TITLE

. Edward V. Evarts
PRINCIPAL INVESTIGATOR(S)

8. Wade Marshall
OTHER INVESTIGATORS

. PROJECT DESCRIPTION

Project: Discovery of structure-activity relationship for drugs that block synaptic transmission in lateral geniculate.

Objectives: To discover the chemical structure required for the property of blockage of synaptic transmission in the lateral geniculate, and to discover chemical agents which will antagonize or prevent the synaptic blocking effects of LSD.

Methods employed: Approximately twenty different indole derivatives are being tested for synaptic blocking effects in the lateral geniculate nucleus. In each experiment, the administration of the drug being tested is followed by administration of lysergic acid diethylamide, to discover whether or not the synaptic blocking effects of LSD are antagonized by the prior administration of the indole derivative being tested.

Major findings: To date only one indole derivative, dimethyltryptamine, has been found to block synaptic transmission in the dosage range of LSD and bufotenine. Dimethyltryptamine differs from bufotenine only by removal of the hydroxy group from the 5-position of the indole ring. Tryptamine and gramine have been found to be inactive at dosages 500 times greater than effective dosages of bufotenine and dimethyltryptamine. Of 6 indole derivatives tested, one has antagonized the effects of subsequently administered LSD. This substance, dimethylaminomethylindole (gramine) was found to be without effect on synaptic transmission in quantities of 50 mg/kg. Following this amount of gramine, LSD in doses of 0.03 mg/kg had no effect on synaptic transmission; in control experiments, 0.3 mg/kg LSD produced an 80% decrease in the amplitude of the synaptic potential resulting from a single shock.

9. PROJECT DESCRIPTION

Significance to Mental Health Research: The discovery of agents which block the effects of LSD gives information which is of significance to mental health research in two respects. In the first place, such knowledge advances our understanding of the mechanism of action of LSD, a psychosis-producing drug. Secondly, the discovery of an agent which alters or blocks the neurophysiological effects of LSD in animals provides us with a drug which may be studied in man to determine whether or not such blockage of effects occurs with respect to the psychological effects in man. If gramine is found to block the effects of LSD in man, it might be evaluated as a possible sedative agent in psychotic states.

Proposed course of project: In addition to drugs already tested, additional drugs such as harmine, reserpine and other indole derivatives will be evaluated. It is hoped that a class of drugs which have the property of blocking the effects of LSD may be developed, and that similarly, a class of drugs having properties similar to LSD will be found.

.P.C. - 2
ecember 1954

Analysis of NIH Program Activities

Budget Data Sheet

.0. 99 (c)
SERIAL NO.

.1. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$7,050	1	1	2	1/3	2/3	1	0
FY 1956	$9,850	2	1	3	1	1/3	1-1/3	0

.2. BUDGET ACTIVITY:

RESEARCH /X/ ADMINISTRATION /_/

REVIEW & APPROVAL /_/ TECHNICAL ASSISTANCE /_/

.3. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

.4. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Clinical Biochemistry and Physiology
LABORATORY OR BRANCH

3. Clinical Physiology
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 100 (c)
SERIAL NO.

6. Effects of a Variety of Indole Derivatives on Motor Coordination and Sensory Reactions in Monkeys
PROJECT TITLE

7. Edward V. Evarts
PRINCIPAL INVESTIGATOR(S)

8. None
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Project: The determination of structure-activity relationship in a series of indole derivatives.

Objectives: The striking effects of two indole derivatives (LSD and bufotenine) on monkeys have been described in another project report. The present project aims at finding additional chemicals with properties similar to LSD and bufotenine. In addition, the same indole derivatives will be tested for LSD blocking effects in monkeys.

Methods employed: Drugs will be administered intravenously, and effects on motor coordination and sensory status noted. Drugs which do not produce LSD-like effects will be followed by LSD or bufotenine, to evaluate the degree to which prior administration of the indole derivative in question may block the effects of LSD.

Major findings: The project is just beginning; no findings are ready for report at the present time.

Significance to MENTAL HEALTH Research: The development of knowledge concerning the chemical structure which is necessary for LSD-like activity, and the knowledge of the structure of agents which block LSD effects will advance understanding of the mechanism of action of LSD.

Proposed course of project: This has been indicated in preceding paragraphs.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 100 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$4,350	1	0	1	1/3	0	1/3	0
FY 1956	$5,450	1	1	2	1/3	1/3	2/3	0

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Clinical Biochemistry and Physiology
LABORATORY OR BRANCH

3. Clinical Physiology
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 101 (c)
SERIAL NO.

6. The effects of drugs on perceptual and motor activity in man
PROJECT TITLE

7. Conan Kornetsky
PRINCIPAL INVESTIGATOR(S)

8. Edward V. Evarts
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Project: The effects of drugs on perceptual and motor activity in man.

Objectives: To study the effects of such drugs as lysergic acid diethylamide (LSD-25) and chloropromazine on perception as measured by alterations in tachistoscopic thresholds and anxiety as measured by the possible disruptive effect of electric shock on motor behavior.

Methods employed: (1) A variety of tachistoscopic thresholds of both normal and psychotic subjects will be studied at various doses of the drugs under investigation. (2) Normal performance on a pursuit rotor (test of motor coordination) will be obtained on each subject. Subjects will then be motivated toward better performance by means of a mild electric shock delivered to one hand. The strength of the electric shock will be gradually increased until disorganization in performance is observed. On a subsequent or prior day the procedure will be repeated after the administration of a drug to the subject.

Major findings: None at present.

Significance to MENTAL HEALTH Research: Since the use of drugs has become more important in recent years in the study of mental illness it is of importance to develop techniques for objectively assaying the effects of these drugs on disorganization of behavior and on perceptual phenomenon. In this way it is hoped to learn something concerning the actions of these drugs.

Proposed course of project: If the experimental techniques prove to be of value a variety of chemical agents, singularly and in combinations will be studied. Also, by means of personality tests attempts will be made to relate the effects of these drugs to personality.

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 101 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$4,668	2	0	2	2/3	0	2/3	150
FY 1956	$4,668	2	0	2	2/3	0	2/3	300

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Clinical Biochemistry and Physiology
LABORATORY OR BRANCH

3. Clinical Physiology
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 102 (c)
SERIAL NO.

6. Psychological Effects of Bufotenine (5-hydroxy-3(2-dimethylaminoethyl)-indole) in man
PROJECT TITLE

7. Conan Kornetsky and Edward V. Evarts
PRINCIPAL INVESTIGATOR(S)

8. None
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Project: The determination of effects of bufotenine on psychological processes in man.

Objectives: To discover whether bufotenine, which has been isolated from a narcotic snuff (cohoba) is the psychologically active agent in the snuff.

Methods employed: Crystalline bufotenine, extracted from the bean of piptadenia peregrina, was given to subjects in doses up to 1 mgm. Blood pressure and pulse were measured. Subjects were given a variety of psychological tests designed to gauge the effect of the drug on intellectual, emotional, and perceptual processes.

Patient material: (1954 calendar year)

	No.	Average Stay Days
Admissions:		
Adult males	3	42
Adult females	2	42

Major findings: In doses up to 1 mgm, bufotenine produced no clear psychological effects beyond those which accompanied the immediate cardiovascular effects of the drug, which lasted only 2 to 5 minutes.

Significance to MENTAL HEALTH Research: The negative findings in this project suggest that bufotenine is not the active agent in the snuff, cohoba. Because of the possibility that the route of administration may have prevented the effect of bufotenine, or because we may have given inadequate dosage, bufotenine cannot be conclusively ruled out as the active agent in the snuff. The recent report that bufotenine occurs in man, and its LSD-like effects in animals at high dosages, make any information concerning its effects in man of interest in a program directed toward gaining further information about the physiological factors in psychotic disorders.

(Psychological Effects of Bufotenine (5-hydroxy-3(2-dimethylaminoethyl)-indole) in man)

Proposed course of project: Further studies will be carried out on other alkaloids isolated from the bean piptadenia peregrina, in a continued search for the active agent of the snuff cohoba.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 102 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$4,184	2	1	3	1/3	1/3	2/3	210
FY 1956	$4,184	2	1	3	1/3	1/3	2/3	300

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Clinical Biochemistry and Physiology
LABORATORY OR BRANCH

3. Clinical Physiology
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 103 (c)
SERIAL NO.

6. Some Effects of Lysergic Acid Diethylamide (LSD) and Bufotenine on Unanesthetized Monkeys
PROJECT TITLE

7. Edward V.Evarts
PRINCIPAL INVESTIGATOR(S)

8. None
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Project: Determination of neurological and psychological effects of LSD and bufotenine in monkeys.

Objectives: To discover specific neurological and psychological effects of LSD and bufotenine; this knowledge will aid in the discovery of the mechanism of action of these drugs.

Methods employed: A number of unanesthetized monkeys were given LSD and bufotenine intravenously. Observations were made on motor coordination, response to sensory stimuli, and general behavior.

Major findings: The drugs were remarkably similar in their effects, producing a unique syndrome which has not previously been reported. At certain dosage levels, the drugs produced a state of transient blindness and insensitivity to pain unaccompanied by gross muscular weakness or motor incoordination.

Significance to MENTAL HEALTH Research: The ability of these drugs to produce this sensory disturbance suggests that they act on the transmission of sensory impulses within the central nervous system. This finding indicated that examination of the effects of these drugs on the transmission of nerve impulses within the visual system might reveal a neurophysiological basis for the effects of LSD.

Proposed course of project: The project has been completed and written up. A movie showing the characteristic effects of the two drugs was presented at the National Medicinal Chemistry Symposium, June, 1954. A paper describing the results of the project will be submitted to the Archives of Neurology and Psychiatry.

Analysis of ESD Program Activities

Project Description Sheet

1. Research Facilities of Central Health Institute
2. Number of Patients Admitted and Treated in 1965
3. Medical Toxicology Section
4. Location (If Other Than Main Institute)
5. Some Effects of Lysergic Acid Diethylamide (LSD) and Dimethyl Sulfoxide (DMSO) Upon Conditioned Avoidance Behavior
6. Project Title
7. Primary Objective (Including Technical Method)
8. None
9. Project Description:

Problem: Investigation of neurohistological and neurochemical effects and interactions in monkeys.

Objectives: To discover specific neurohistological and [illegible] of LSD and Dimethyl sulfoxide on [illegible] in the [illegible] of the mechanisms of action of the [illegible].

Methods Employed: A number of conditioned avoidance [illegible] administered intravenously. Observations were made on conditioned response to auditory stimuli, on [illegible] behavior.

Major Findings: [illegible] more reasonably similar in [illegible] effect to a minor psychosis which has not [illegible] reported. An article [illegible] in press. [illegible] of treated [illegible] and [illegible] by gross anatomic examination of [illegible] tissue.

Significance to Mental Disorders: The validity of these [illegible] problem this section [illegible] suggests that the [illegible] the transmission of auditory [illegible] the [illegible] nervous system. This finding indicated the [illegible] the effects of these drugs on the transmission of [illegible] involves within the visual system which [illegible] pharmacological basis for the effects of LSD.

Technical Difficulty: The problem has been considered [illegible] in solving the chemotherapeutic effects of the [illegible] was presented at the National Biological Chemistry [illegible]. Work, a paper describing the results of the [illegible] will be published in the Archives of Neurology [illegible].

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-103 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955		Project completed in						
FY 1956		Fiscal Year 1954						

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

R.P.C. - 3
December 1954

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH 103 (c)
SERIAL NO.

16. LIST PUBLICATIONS OTHER THAN ABSTRACTS FROM THIS PROJECT DURING CALENDAR YEAR 1954:

Edward Evarts: "Psychopathological Effects of Drugs" published in the Proceedings of the Fourth National Medicinal Chemistry Symposium, June 1954

17. LIST HONORS AND AWARDS TO PERSONNEL RELATING TO THIS PROJECT DURING CALENDAR YEAR 1954:

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Clinical Biochemistry and Physiology and Laboratory of Neurophysiology
LABORATORY OR BRANCH

3. Clinical Physiology
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 104 (c)
SERIAL NO.

6. Some Effects of Lysergic Acid Diethylamide (LSD) and Bufotenine on Neural Transmission in the Visual System of the Cat
PROJECT TITLE

7. Edward V. Evarts
PRINCIPAL INVESTIGATOR(S)

8. Wade Marshall, Walter Freygang, William Landau
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Project: Discovery of the mechanism of action of LSD and bufotenine.

Objectives: The objective of this project is to elucidate the neurophysiological effects of LSD and bufotenine.

Methods employed: LSD and bufotenine have previously been found to produce transient blindness in monkeys. We have therefore been studying the effect of LSD on the transmission of the nerve impulse within the visual system.

Major findings: Both LSD and bufotenine have been found to block synaptic transmission in the lateral geniculate nucleus. In quantities that block synaptic transmission in the geniculate, neither drug alters transmission in the retina or visual cortex.

Significance to MENTAL HEALTH Research: The observation that LSD is a specific blocker of transmission of nerve impulses within the thalamus represents the discovery of a hitherto unreported type of drug effect. No previous report has described any agent which has specific ability to block synaptic transmission in the thalamus. Thus, LSD, which has unique potency in producing psychotic-like state, has now been found to have specific and unique effects on transmission of the information from sense receptors to the cortex. The fact that bufotenine, which has recently been shown to occur naturally in human urine, has the same property as LSD indicates that there is a naturally occurring substance in man whose neurophysiological effects are similar to those of LSD. These findings will be of value in formulating hypotheses as to possible neurophysiological and biochemical correlates of psychoses.

Proposed course of project: The project has been completed and written up, and will be published in the American Journal of Physiology.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 104 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955			Project completed in		—			
FY 1956			Fiscal Year		1954			

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Clinical Biochemistry and Physiology
LABORATORY

3. _____
SECTION

4 _____
LOCATION

5 105 (c)
SERIAL NO.

6. Investigation of Phenolic Compounds in the Spinal Fluid of Neuropsychiatric Patients.
PROJECT TITLE

7. Dr. Marian W. Kies and Dr. Norman P. Goldstein
PRINCIPAL INVESTIGATORS

8. Dr. Albert A. Kurland, Spring Grove State Hospital, Catonsville, Md.
OTHER INVESTIGATOR

9. Project: A study of aromatic amino acids in spinal fluid of neuropsychiatric patients.

Objectives: The objective of this project was to investigate a report in the European medical literature on the findings of aromatic amino acids in the spinal fluids of neuropsychiatric patients.

Methods Employed: This was a colorimetric method for determining the concentration of amino acids such as tyrosine and tryptophane.

Major Findings: The major finding of this project during the past year was carrying out these determinations of the spinal fluid of 50 patients with different neuropsychiatric diagnoses. We were unable to confirm the previous report in the literature that there was an increase of these amino acids in the spinal fluid of neuropsychiatric patients.

Significance to Mental Health Research: If increased levels of aromatic amino acids had been found in the spinal fluid of neuropsychiatric patients, it would have been important because of the possibility of a metabolic disturbance in cerebral metabolism in these conditions. However, the negative findings are significant, if only because it points out that so far definite biochemical changes have not been found in patients with these disorders.

Proposed Course of the Project: This project was completed in fiscal year 1954 and is currently being written up for publication.

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Psychology
LABORATORY

3. --
SECTION

4. --
LOCATION

5. #106 (C)
SERIAL NO.

6. Organization of Psychology Laboratory
PROJECT TITLE

7. David Shakow
PRINCIPAL INVESTIGATOR

8. --
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Objectives: Organization of Laboratory into various sections and integrate it into the structure of the Programs of Clinical Investigations and of Basic Research.

Methods Employed: Program of recruitment of personnel, orientation of personnel, conferences on organization of laboratory, etc.

Results to Present:

1. Personnel recruited, by sections:

Section on Child Development
Dr. Bayley, Nancy (Chief)
Dr. Bell, Richard Q.
Dr. Schaefer, Earl S.
Dr. Boomer, Donald

Section on Aging
Dr, Birren, James (Chief)
Dr. Streicher, Eugene

Section on Animal Behavior
Dr. Rosvold, H. E. (Chief)
Dr. Mirsky, Allen

Section on Perception and Learning
Dr. Carlson, V. (Acting Chief)
Dr. Blough, Donald

Dr. Calhoun, John (Visiting Psychologist)

Section on Personality and Its Deviations
Dr. Dittmann, Allen (Acting Chief)
Dr. Parloff, Morris
Dr. Iflund, Boris

2. Administrative conferences are held weekly--

   Bi-weekly with all professional personnel, and on alternate weeks with Section Chiefs at which problems involving personnel, equipment, etc., are considered.

3. Research Meeting--Held weekly at which members of laboratory report current research or research proposals for consideration by the group.

4. Regular conferences with members of the laboratory either individually or by sections to consider in detail research proposals, progress of research, etc.

Proposed Course of Project: The Laboratory is still in the shaking-down process, with facilities to be built, with moving of personnel to other locations, the recruitment of additional personnel, etc. Until this period is over we can expect that the Laboratory will not reach the optimum level of productivity which the personnel recruited give promise of attaining. It is expected that by the end of the year the Laboratory will become well-stabilized in its section organization and administrative problems of organization will become relatively minimal.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH #106 (C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$6,571	1	1	2	1/3	1/3	2/3	
FY 1956	$6,571	1	1	2	1/3	1/3	2/3	

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Psychology
LABORATORY

3. Section on Personality and Its Deviations
SECTION

4. --
LOCATION

5. #107 (C)
SERIAL NO.

6. The Analysis of the Psychotherapeutic Process, Particularly the Psychoanalytic Process
PROJECT TITLE

7. David Shakow
PRINCIPAL INVESTIGATOR

8. Robert Cohen
Allen Dittmann
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Objectives: To make an intensive study of the process of psychotherapy, particularly psychoanalysis, in both macroscopic and microscopic fashion.

Methods Employed: 1. Data collection--Naturalistic recording by sound-movies and by stereophonic sound of sections and total courses of psychotherapeutic and psychoanalytic relationships.
2. Data analysis--A great variety of partial, total, and cumulative exposure techniques to deal with the immense number of auditory and visual cues and to determine their relative place and importance in the intercommunication process.

Major Findings: This program is still in the stage of waiting for the facilities which are to be built--a room in which psychotherapy and psychoanalysis can be recorded with as little disturbance of the natural process as possible.

Significance to Mental Health Research: Psychotherapy is the major therapeutic device in the mental health field. Our understanding of it as a process is still very limited. This is largely due to the fact that our data of the process comes almost entirely from post hoc reports made by one of the participants of the process--the therapist. The actual situation which involves a very complex personal interrelationship in which communication takes place in large measure at an implicit level has never been made available for study and analysis by persons not involved in the actual situations. Only through some procedure as here outlined can one come anywhere near obtaining data in a form subject to multiple and repeated analysis--a necessity in the case of data so complex and so extensive.

This program has possibilities for making contributions in many directions--theoretical and methodological. Methodologically, it should provide suggestions for dealing with such exceedingly difficult problems of research in mental health as repeatability of observations, the observer as instrument, the perception and analysis of molar units, etc.

Theoretically, aside from contributions to the understanding of the therapeutic process itself, the procedure permits the significant study of personality reactions in appropriate and meaningful inter-personal relationships. These are conditions which have been almost impossible to obtain in the laboratory. Important suggestions may also derive for understanding communication and decision-making processes.

Proposed Course of Project: It is expected that this program of research will go on for many years. For the present the program is presented in this broad and general manner. In subsequent reports it is expected that specific projects under this program will be outlined in detail. The course will necessarily involve improving instrumental technical devices and analytic technical devices as well as the systematic follow-up of the main theoretical developments.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH #107 (c)
SERIAL No.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$10,471	1	1	2	1/3	1/3	2/3	
FY 1956	$75,471	5	2	7	3	2	5	

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE ,OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES ,OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Psychology
LABORATORY

3. Section on Personality and Its Deviations
SECTION

4. --
LOCATION

5. #108 (C)
SERIAL NO.

6. (Proposed) Psychology of Schizophrenia: The Problem of Set
PROJECT TITLE

7. David Shakow
PRINCIPAL INVESTIGATOR

8. To be selected
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Objectives: To follow-up intensively the findings of previous studies made by the proponent of a fundamental characteristic difference of schizophrenics, the inability to establish and maintain a set to respond to stimuli.

Methods to be Employed: In reaction-time and other settings to study the psychological and physiological processes which occur during the period of preparation for response. This would include such physiological measures as muscle tension and galvanic skin response, and on the psychological side the effects of varying instructions and concerted experimental efforts to achieve maintenance of set. Primates and senescent human subjects would serve as control groups.

Significance to Mental Health Research: Many years of psychological research with schizophrenics have consistently supported this difference from normal subjects, whereas other differences have not stood up. Pinning down the details of the factors involved in this characteristic, both on the psychological and physiological side, may provide us with a fundamental basis for understanding the nature of schizophrenia. Already some evidence from studies with drugs in lobectomized monkeys and the functioning of senescent adults leads one to believe that one is here dealing with a more general defect which has only special manifestations in schizophrenia.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH #108 (c)
SERIAL NO!

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$6,466	1	1	2	1/3	1/3	2/3	
FY 1956	$6,466	1	1	2	1/3	1/3	2/3	

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO!(S) IF WITHIN NIH)

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Psychology
LABORATORY

3. Section on Personality & Its Deviations
SECTION
(Proposed)

4. --
LOCATION

5. #109 (c)
SERIAL NO.

6. Personality Characteristics of Patients Who are Responsive to "Placebo"
PROJECT TITLE

7. M. B. Parloff
PRINCIPAL INVESTIGATOR

8. Norman Goldstein and Boris Iflund
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Project: Personality characteristics of patients who are responsive to Placebo

Objectives: (1) To identify and describe the personality patterns of psychoneurotic out-patients who evidence a positive or negative change subsequent to treatment by placebo. (2) To determine the characteristic response to psychotherapy of patients who may be designated as placebo-prone or placebo-resistant.

Methods Employed: Personality measures will include psychiatric interview and case history, Rorschach, Iflund Selective Recall, MMPI; measures of suggestability will include the Body Sway Test and the Heat Illusion Test. Measures of change will include the periodic administration of the Rorschach, MMPI, Symptom-Check lists, Leary Interpersonal Check List--patients' descriptions and description by the therapist of the patient.

Patient Material:

1955 (Projected) 20 OPD Psychoneurotics

Major Findings: Will commence research in January 1955.

Significance to NIMH Research: Recent studies of the relative effectiveness of specific drugs and placebos in the treatment of psychoneurotic conditions have revealed that approximately 30-50 percent of the patient sample show significant change in their symptomatology while undergoing placebo therapy. In drug studies the placebo effect may be recognized and differentiated from the effects attributable to the specific therapeutic medium under study. In psychotherapy, however, no such clear differentiation has been made. Changes which are believed to be in the direction of mental health tend to be attributed to the particular therapist or school of therapy to which he belongs. The fact of patient-change is usually taken as de facto evidence of the effectiveness of therapy. It is possible, however, that just as in response to placebos, a sizable portion of psychoneurotics who are treated by psychotherapeutic interventions may be responding to the "suggestion" element which is common to all forms of psychotherapy rather than to the specific therapeutic effectiveness of theory, technique or sensitivity of the therapist.

R. P. C. - 2
December 1954

Analysis of NIH Program Acitivities

Budget Data Sheet

NIMH

10. #109 (C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS PROF.	BUDGETED POSITIONS OTHER	BUDGETED POSITIONS TOTAL	MAN YEARS PROF.	MAN YEARS OTHER	MAN YEARS TOTAL	PATIENT DAYS
FY 1955	$2,250	1	-0-	1	1/3	-0-	1/3	
FY 1956	$2,250	1	-0-	1	1/3	-0-	1/3	

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM)

Veterans Administration, Mt. Alto Hospital will provide patients.

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

None

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Psychology
LABORATORY OR BRANCH

3. Child Development
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. #110 (c)
SERIAL NO.

6. Organization of the Section: A Study of the Development of the Infant in Relation to Its Family.
PROJECT TITLE

7. Dr. Nancy Bayley
PRINCIPAL INVESTIGATOR

8. Dr. R.Q. Bell, Dr. Earl Schaefer
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Objectives: To study by direct observation during the period of infancy and early childhood, the processes of personality formation as they are influenced by the psychological climate of the home. The purpose is to test psychological hypotheses concerning the role of the parents in the etiology of emotional maladjustments, social maladjustments, and personality disorders. The primary emphasis is on direct observations of parent-child interactions, both in the home and in the laboratory.

Methods Employed: Plans have been made to secure data on the personalities of the parents and on family interactions by interviews, rating scales, and observations. Studies of the parents, including studies of their personalities, attitudes toward childrearing, and marital adjustment will be begun before the birth of the child. The psychological environment of the infant will be studied in the family milieu with observations being made on (a) mother-child interactions, both specific behaviors and emotional climates, (b) parental relationships with one another, with the subject of the study, and with siblings of the subject, and (c) background data on other family characteristics such as social class, educational level, occupational level, and social roles of the parents which may be relevant to the adjustment of the child.

The data on the psychological environment of the child will be related to the infant's developmental progress as reported by the parents and as directly observed and measured in standard situations. Data on the child's developmental progress include: (a) reports and observations of social and emotional adjustment, (b) observation of personality characteristics, (c) records of health and pediatric examinations, (d) tests of mental development, (e) tests of sensory and motor abilities, (f) measures of physical growth and (g) observations on physical constitution.

(continued on next page)

(Continuation of Description of Project titled "Organization of the Section: A Study of the Development of the Infant in Relation to Its Family")

Photographic records are made of the various aspects of development and of characteristic interactions. The purpose of these photographic records is to make the basic data available for later re-evaluations and for study which would lead to conceptual refinements. These records should enable us to increase the objectivity and communicability of methods of quantifying observations.

Major Findings: The major finding during the year past has been the development of a scale for selecting the parents whose children we will study (Schaefer and Bell), and working out the research design of the project.

Significance to Mental Health Research: Other research has shown, for example, that the mothers of adult schizophrenics are over-protective and closely tied to their children. Also, an important tenet of psychoanalytic theory is that the emotional climate experienced in infancy is a determining factor in the development of neuroses and psychoses. It is necessary to study these processes in infancy in order to test their relative importance in the development of personality disorders.

Proposed Course of Project: During the fiscal years 1955 and 1956, the selection tests will be applied to appropriate populations, and from these infants will be chosen for study, including a control, non-deviant group, and several sub-groups whose parents have expressed attitudes that may be conducive to disturbed development. The study is a longitudinal one, in which the children will be seen repeatedly from the time of birth, making it possible to record the course of development in individuals who are growing up in markedly different psychological environments. These samples will be built up slowly, and it is expected that the rest of fiscal year 1955 will be taken up mostly in developing methods and procedures, and in starting the infant tests and observations on a pilot group of cases.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH #110 (C)

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$23,557	4	3	7	2	1	3	66 in CC 121 out*
FY 1956	$34,492	4	3	7	4	2 1/3	6 1/3	324 in CC 532 out*

*Outpatient, and in the home.

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

Dr. Leon Yarrow, on an NIMH Public Health Special Grant, is conducting a research on infants in foster and adoptive homes that furnishes a study of the effects of a different variable in parent-child relationships.

R.P.C. -1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Psychology
LABORATORY OR BRANCH

3. Child Development
SECTION

4. --
LOCATION (IF OTHER THAN BETHESDA)

5. #111 (C)
SERIAL NO.

6. A Screening Test for Selecting Parents on the Basis of their Attitudes toward their Children.
PROJECT TITLE

7. Dr. Earl Schaefer and Dr. R. Q. Bell
PRINCIPAL INVESTIGATOR(S)

8.
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Objectives: To develop and standardize an easily-applied, short test, in which parents will express their attitudes toward children, and child-rearing practices in such a way that those may be selected out who are clearly extreme in their tendencies to be rejecting, warmly accepting, over-protective, punitive, indifferent, etc.

Methods Employed: Starting with some statements that Marks and Shoben found to be characteristic of the mothers of schizophrenics, and of other disturbed persons, a series of statements has been set up, to which the subjects are asked to express varying degrees of agreement or disagreement. These statements are presented as possible ways parents feel or act toward their children. The statements are being given preliminary trials with mothers of newborn infants, and those that elicit a variety of attitudes, and also differentiate women with consistent attitudes are retained for use in a scale. The scale is being validated by giving it to a population for whom there are independent criteria of attitudes and personality characteristics An equivalent scale for fathers is being standardized in the same way.

Major Findings: A large number of items that meet the criteria have been selected, and the selection test is in process of validation.

Significance to Mental Health Research: This selection test, in addition to its function in the research program of the Section, may prove to be a valuable screening device for more general use. It should permit the detection of parental attitudes which are most likely to result in maladjustive parent-child relationships. The instrument, used in pre-natal clinics, obstetrical wards, or school situations may have considerable potential for community programs in preventive mental health.

(Continued on Next Page)

Proposed Course of Project: It is expected that by the end of fiscal year 1955 the test items will have been validated and those that meet the criteria will have been assembled in a final test. This test will then have been put to use in the initial screening to select cases for study in the Organization Project of the Section on Child Development.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH #111 (C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$7,695	2	2	4	2/3	1	1 2/3	96
FY 1956	None	0	0	0	0	0	0	none

*At U.S. Naval Hospital, Bethesda, Md., and Walter Reed Army Hospital, Washington, D.C.

12. BUDGET ACTIVITIES:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

Patients furnished by cooperation with the Naval Hospital and Walter Reed Army Hospital

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Psychology
LABORATORY OR BRANCH

3. Child Development
SECTION

4. --
LOCATION(IF OTHER THAN BETHESDA

5. #112 (C)
SERIAL NO.

6. Experimental Tests of Accelerated Longitudinal Approaches
PROJECT TITLE

7. Richard Q. Bell
PRINCIPAL INVESTIGATOR

8.
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: To test the advantages and limitations of a method termed "convergence" which may meet some research needs which are not satisfied currently by either a cross-sectional or longitudinal approach in studying human development.

Methods employed: This method involves combining the cross-sectional and longitudinal techniques in such a way that developmental changes for a long period may be estimated in a much shorter period. A study of changes in a dependent variable over what would otherwise be an 8-year period, for example, may be accomplished by measuring each of four age groups three times over a 2-year period. The groups are selected so that the final measurement of a younger group is made at the same age as the initial measurement for the next older group. The differences in level attained at the same point in age may be used together with the direction of movement shown by both groups in determining whether any two temporally adjacent curves should be linked.

Major findings: The method was applied to published longitudinal measurements of children's heights, and the curve constructed by this method was found to fit closely the actual curve of the longitudinal data.

(continued on next page)

(continuation of project titled "Experimental Tests of Accelerated Longitudinal Approaches")

Significance to Mental Health Research: A phenomenon thought by most observers in the field to be obtainable only through longitudinal studies was reflected clearly by this method. Further tests will be conducted on personality data. Accelerated longitudinal approaches may offer a means of obtaining preliminary tests of hypotheses prior to carrying out the more time-consuming customary longitudinal studies. Since many important personality variables are anchored in cultural factors subject to change in a fluid social system it is very important that research studies keep pace with the phenomenon being investigated. This more rapid approach may thus be especially important in the field of personality development.

Proposed course of project: This project is completed, with publications, as indicated. The method is one that will be applied in some of the planned projects of the Section on Child Development.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH #112 (C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$3,893	1	1	2	1/3	1/3	2/3	none
FY 1956	None	0	0	0	0	0	0	none

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

R.P.C. - 3
December 1954

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH #112 (C)
SERIAL NO.

16. LIST PUBLICATIONS OTHER THAN ABSTRACTS FROM THIS PROJECT DURING CALENDAR YEAR 1954:

Bell, Richard Q. Convergence: An Accelerated Longitudinal Approach. Child Development, 1953, 24, No. 2, 145-152.

Bell, Richard Q. An Experimental Test of the Accelerated Longitudinal Approach. Child Development (In Press) 1954.

17. LIST HONORS AND AWARDS TO PERSONNEL RELATING TO THIS PROJECT DURING CALENDAR YEAR 1954:

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Psychology
LABORATORY OR BRANCH

3. Child Development
SECTION

4. --
LOCATION (IF OTHER THAN BETHESDA)

5. #113 (C)
SERIAL NO

6. A Study of Psychological characteristics of persons reporting symptoms of the common cold after administration of a placebo.
PROJECT TITLE

7. Dr. Earl Schaefer
PRINCIPAL INVESTIGATOR

8. Robert J. Huebner
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: To study personality characteristics which are related to response to placebos and which may be correlated with complaints of chronic colds.

Methods employed: Volunteers from a prison population were given either a placebo or a substance thought to be a probable cold virus. Subsequent daily examinations of all subjects were made by physicians, and all symptoms noted.

Major findings: There was no significant difference in incidence of colds for those given the virus and those given the placebo. About half of all subjects developed colds.

Significance to Mental Health Research: The results may lead to a realization of the importance of psychological factors in the design of experiments on the common cold, and on other diseases which are thought to be of viral or bacterial origin. There are indications that some persons are more suggestible than others, and thus more readily fall ill under conditions of exposure, or during epidemics. Many psychosomatic illnesses may be of this kind.

Proposed course of project: These findings may lead to a more adequate research design in further tests of possible cold viruses and similar researches.

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH #113 (C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$3,197	1	1	2	1/3	1/3	2/3	50*
FY 1956	None	0	0	0	0	0	0	none

*At the U.S. Reformatory for Men, Chillicothe, Ohio.

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW AND APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

Section on Virus and Rickettsial Diseases, National Microbiological Institute.

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Psychology
LABORATORY OR BRANCH

3. Child Development
SECTION

4. --
LOCATION (IF OTHER THAN BETHESDA)

5. #114 (C)
SERIAL NO

6. An investigation of time-sense in juvenile character disorders
PROJECT TITLE

7. Donald S. Boomer, Ph.D.
PRINCIPAL INVESTIGATOR

8.
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Project: An investigation of time-sense in juvenile disorders

Objectives: The primary objective of this project is to test the hypothesis that in children who are diagnosed "extreme character disorder" the clinically observable inability to delay gratification is related to defective conceptualization of time.

Methods employed: Present patients and future admissions to Dr. Redl's Children's Service in NIMH will comprise the experimental group. The comparison groups to be employed will be made up of children of comparable age and intelligence who are:
(1) inpatients in medical services in NIH
(2) being treated as outpatients in a child guidance clinic
(3) randomly selected from a non-patient population such as a public school.

All subjects will be tested as to their ability to estimate the duration of brief periods of time, ranging from 5 seconds to 3 minutes with several determinations at each step. During a second series of determinations the subject is told after each estimate the size and direction of his error, in order to ascertain his ability to use feedback information in order to improve his performance.

(continued on next page)

Major findings: This project has just begun, and due to the relatively low admission rate to the children's service the experimental subjects accumulate slowly. Preliminary findings suggest that the hospitalized group may show significant time-sense deficiency.

Significance to Mental Health research: In order to understand the nature and functioning of ego control in normal people it is necessary to specify and define the precise capacities and abilities involved. The present research represents an approach to this problem of definition through investigating the status of a measurable kind of ability in children who are known to lack effective behavior controls.

Proposed course of the project: It appears that the major part of the next fiscal year will be required to accumulate a number of experimental subjects large enough to permit statistical comparisons. Meanwhile the required conparison groups will be assembled and tested.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH #114 (C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$1,850	1	-0-	1	1/3	-0-	1/3	20
FY 1956	$1,850	1	-0-	1	1/3	-0-	1/3	40

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Psychology
LABORATORY OR BRANCH

3. Child Development
SECTION

4. --
LOCATION (IF OTHER THAN BETHESDA)

5. #115 (C)
SERIAL NO

6. An investigation of the relationship between behavior in psychotherapy and behavior in the life space.
PROJECT TITLE

7. Donald S. Boomer, Ph.D.
PRINCIPAL INVESTIGATOR

8.
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Project: Behavior in psychotherapy and in the life space.

Objectives: To examine the relationships which exist between the kinds of behavior exhibited by children in a play therapy situation and the kinds of behavior they exhibit elsewhere. To assess whether improvement in therapy is accompanied by systematic changes in the relative incidence of certain kinds of behavior in the two situations.

Methods employed: The subjects are inpatients on the Children's Service, NIMH, who are receiving individual play therapy, in addition to a therapeutically designed activity program on the ward. Each child's behavior will be observed and recorded during his play therapy sessions and during certain representative ward activities: games, school, mealtime, etc. Comparisons will then be made as to the relative incidence in these situations of identifiable emotional reactions and interpersonal behavior patterns.

Major findings: This project is just beginning and no findings are as yet available. Preliminary study indicates that with practice observers can remember and record in sufficient detail complex behavior samples of 5 minutes duration.

(continued on next page)

Significance to Mental Health research: This service provides an unique opportunity to study the relationships between psychotherapy and the rest of a patient's life, since these patients are available for observation 24 hours per day. Such research is impossible in the outpatient clinic where one can only make inferences about what is currently happening in the patient's life away from the treatment situation.

Proposed course of the project: It is contemplated that this project will continue throughout fiscal year 1956. Other specific relationships will be studied such as the implications of change in therapy for school progress.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH #115 (C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$1,850	1	-0-	1	1/3	-0-	1/3	450
FY 1956	$1,850	1	-0-	1	1/3	-0-	1/3	900

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Psychology
LABORABORY OR BRANCH

3. Child Development
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. #116 (C)
SERIAL NO

6. Operational definition of staff roles in a residential child treatment operation
PROJECT TITLE

7. Wells Goodrich, M.D.; Donald S. Boomer, Ph.D.
PRINCIPAL INVESTIGATORS

8. _____
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Project: Staff role definition.

Objectives: To delineate the basic assumptions and the personal and group values which underlie the professional conduct of the major personnel in a residential treatment operation, in this case, Children's Service, NIMH.

Methods employed: The 3 major treatment foci are ward activities, school, and individual psychotherapy. Goals and attitudes of counselors, teachers and therapists will be systematically mapped through the use of the critical incident technique. This involves regular interviewing of each staff member in these 3 categories concerning recent staff-patient interactions which he observed or participated in and which he felt to be either singularly effective or ineffective in terms of the treatment goals of his particular phase of the total operation.

As these critical incidents are gathered and categorized certain axes or dimensions begin to emerge, which by indirection and implication define the various staff roles as the occupants of these roles see them.

Major findings: The project is just under way, and since an extended period of interviewing must precede the analysis of the data no findings are yet available.

(continued on next page)

Significance to Mental Health research: When residential care of disturbed children is thought of as treatment rather than mere custody, then all phases of the operation become treatment-relevant: games, eating, and school no less than traditional psychotherapy. Despite overlap, each phase has distinctive features which can be defined in terms of the goals of that phase and the ways in which personnel operate with respect to these goals. Such a conceptual framework is basic to many of the complex research questions which grow out of this operation.

Proposed course of the project: The interviewing phase of this project will probably be completed during fiscal year 1955. Analysis of the data and direct application of findings to related research projects will extend well into 1956. One contemplated application of the findings is their use in developing criteria and instruments for selecting staff people for these various categories.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH #116 (C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF.	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$1,850	1	-0-	1	1/3	-0-	1/3	none
FY 1956	$1,850	1	-0-	1	1/3	-0-	1/3	none

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Psychology
LABORATORY

3. Section on Personality & Its Deviations
SECTION

4. --
LOCATION

5. #117 (C)
SERIAL NO.

6. Interaction Studies in a Treatment Setting for Children
PROJECT TITLE

7. Allen T. Dittmann
PRINCIPAL INVESTIGATOR

8. D. Wells Goodrich
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Objectives: To develop methods for studying interaction patterns between children and adults on a treatment ward for disturbed children.

Methods Employed: Short-sample observations of specific situations on the ward and in the field (situations selected for their conduciveness to nurturant and limit-setting adult behavior). Observations are recorded on tape by intensive interviewing of the observer. These recordings are transcribed, and the transcriptions form the basic data of the research. The protocols are coded for interactions. This method was developed by the principal investigator while at the University of Michigan.

Patient Material:

	No.	Average Stay Days
Children male	14	*

*Eight of the children (normals) stayed 30 days; the remaining six have been in the Clinical Center five months to date.

Major Findings: The present status of the project is in coding data. No findings can be reported at this time.

Significance to NIMH Research: This method will give information about daily behavior of children which is otherwise not available in such complete and intensive a form. It can form the basis for many separate researches on child behavior.

Proposed Course of Project: Following completion of coding the protocols, the first checks that will be made will be for reliability of the coding system. Then comparisons will be made between normal and disturbed children for different situations--comparisons both of child and adult behavior. Next the protocols will be used to compare ward behavior with psychotherapy behavior of the disturbed children. Other studies of the relation between ward behavior and test materials, again both of children and of adults, are contemplated.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH # 117 (C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF.	OTHER	TOTAL	PROF.	OTHER	TOTAL	
FY 1955	$4,705	1	1	2	1/3	1/2	5/6	50
FY 1956	$4,705	1	1	2	1/3	1/2	5/6	100

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM)

None

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

None

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Psychology
LABORATORY

3. Section on Personality & Its Deviations
SECTION

4. --
LOCATION

5. #118 (C)
SERIAL NO.

6. Units of Analysis in Psychotherapy Research
PROJECT TITLE

7. Allen T. Dittmann
PRINCIPAL INVESTIGATOR

8. --
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Objectives: To study systematically the various possible units for analyzing psychotherapeutic interviews, with a view to establishing some standard units for comparing data. The bases for forming units to be explored are: (a) arbitrary, such as time; (b) content, such as change of topic; (c) linguistic, such as change in word usage or voice inflection; (d) interaction, such as change in interpersonal behavior; (e) motor, such as change in posture, body movement, facial expression.

Methods Employed: Ratings, rankings, codings of tape recordings, typescripts, motion pictures of interviews.

Patient Material: None (interviews conducted for other investigations are used in this project)

Major Findings: Since this is a new project, no findings are yet reportable.

Significance to NIMH Research: Not until issues of methodology in psychotherapy research have been systematically investigated and tested can the research be on a firm basis. The problem of units into which interviews (or groups of interviews) should be divided is one of first-order importance, and yet one which has never been tackled intensively. This project is designed to provide enough information about the effects of different units on research so that intelligent choice of units for any given study may be made.

Proposed Course of Project: To compare the effects of units of different type and size on the measurement and reliability of a range of variables under different conditions.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH #118 (C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF.	OTHER	TOTAL	PROF.	OTHER	TOTAL	
FY 1955	None	-0-	-0-	-0-	-0-	-0-	-0-	-0-
FY 1956	$6,600	1	1	2	1/2	1/3	5/6	-0-

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM)

None

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

None

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Psychology
LABORATORY

3. Section on Personality & Its Deviations
SECTION

4. --
LOCATION

5. # 119 (C)
SERIAL NO.

6. Dreams and Peyotism Among the Navaho
PROJECT TITLE

7. Allen T. Dittmann
PRINCIPAL INVESTIGATOR

8. Morris B. Parloff
Boris Iflund
Harvey C. Moore, Department of Sociology, American University
David F. Aberle, Department of Anthropology, U. of Michigan
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Objectives: To determine the usefulness of dreams in determining disturbance among a non-literate people and its relationship to cult formation in the religious life of the people.

Methods Employed: Fifty-nine dreams collected by Drs. Moore and Aberle in field work among the Navaho (on a USPHS project) were used.

Investigators knew that some were produced by Navaho, and some by Peyote cultists of Navaho origin. Neither the identity nor proportions represented by each group was known. The field workers entertained the hypothesis that the more disturbed people would participate in the Peyote cult, and the investigators made judgments, both ratings and codings, of the dreams to estimate disturbance.

Major Findings: Thus far there are data to support the major hypothesis, but not to a high degree of statistical significance. Further analysis of the data is under way to determine the areas in which dreams are most useful in this sort of research and to point up ways of collecting them to best advantage.

Significance to NIMH Research: Tools for use in culture-personality research are always in high demand. The refinement of dream analysis as such a tool would be of great help in the field because of the near-universality of dreaming as a phenomenon and the ease with which they may be collected from non-literate people -- the number of non-dreamers in the present sample was very low.

Proposed Course of Project: To complete analysis of data. It would be desirable to utilize the knowledge gained here in further collection of dreams among non-literate people, but no project of this sort is contemplated.

[illegible]

[illegible]

Topics Based on Text

1. [illegible]

2. [illegible]

3. [illegible]

4. [illegible]

5. [illegible]

6. [illegible]

7. [illegible]

8. [illegible]

9. [illegible]

10. [illegible]

11. [illegible]

12. [illegible]

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH # 119 (C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF.	OTHER	TOTAL	PROF.	OTHER	TOTAL	
FY 1955	$2,750	1	-0-	1	1/3	-0-	1/3	-0-
FY 1956	None	-0-	-0-	-0-	-0-	-0-	-0-	-0-

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVEIW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM)

None

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

None

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Psychology
LABORATORY

3. Section on Personality & Its Deviations
SECTION

4. --
LOCATION

5. # 120 (C)
SERIAL NO.

6. Communication of Value Systems between Therapist and Schizophrenic Patients
PROJECT TITLE

7. M. B. Parloff
PRINCIPAL INVESTIGATOR

8. Boris Iflund and Norman Goldstein
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Project: Development of a method for the analysis of aspects of the psychotherapeutic process with schizophrenics

Objectives: To devise techniques for the study of the process by which the schizophrenic patient learns the therapist's value system regarding therapy, and the therapist learns the patient's values.

Methods Employed: Each psychotherapy session is observed through a one-way mirror and the topics introduced by the patient are recorded by the observer. At the close of the session the observer requests the therapist and patient independently to rank order the topics in terms of their importance to the rater (re therapy) and then to predict each other's rankings. These four rankings are then intercorrelated. The patient's evaluation of the degree to which the therapist understood him is determined by his daily completion of an "understanding scale." The "understanding" scale score is then correlated with the therapist's actual understanding as determined by the accuracy of the therapist's prediction of the patient's rankings.

This procedure has been conducted with two paranoid schizophrenic patients who have been treated continuously in individual therapy by one therapist for approximately one year.

Patient Material:

	No.	Average Stay Days
Admissions: Adult Male	2	300

Major Findings: The analysis of the data is currently in progress. The findings thus far indicate that a significant amount of learning does occur in the course of therapy, i.e. the patient does learn the therapist's values and the therapist does learn the patient's values. There is also evidence that the patient does tend to adopt the therapist's values; however, there is no evidence that such learning is a direct function of time alone.

Significance to NIMH Research: Basic to the understanding of psychotherapeutic treatment of schizophrenia is the understanding of the interrelationships between therapist and patient. It is this relationship that provides the conditions which permit the patient t learn that it is safe to give up his psychotic defenses and to learn more adapative ways of relating. The above technique permits the study of the factors influencing the learning process which occurs in therapy.

Proposed Course of Project: A considerable portion of the next calendar year will be devoted to the isolation of variables which influence the learning process which has been identified by the present study. The influence of content will be studied by an analysis of recordings of ten sessions in which the patient demonstrated a high degree of learning and of ten sessions in which the patient evidenced a low degree of learning. The ward behavior of patients prior to and subsequent to psychotherapy sessions (as recorded in daily nurses reports) will be studied in relation to the learning process. The present findings appear to justify the application of a simplication of this technique to a larger therapist-patient sample.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH # 120 (C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF.	OTHER	TOTAL	PROF.	OTHER	TOTAL	
FY 1955	$6,100	3	1	4	1	1/3	1-1/3	35
FY 1956	$6,100	3	1	4	1	1/3	1-1/3	35

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S)(ITEM)

None

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

None

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Psychology
LABORATORY

3. Section on Personality & Its Deviations
SECTION

4. --
LOCATION

5. # 121 (C)
SERIAL NO.

6. Selective Recall of Emotionally Toned Stimuli in Various Psychiatric Groups
PROJECT TITLE

7. Boris Iflund
PRINCIPAL INVESTIGATOR

8. --
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Objectives: This study is an attempt to verify some psychoanalytic formulations of personality dynamics and of their impact on cognitive processes. Congruence of selective forgetting of contents with personality dynamics postulated for various clinical groups will verify both the repression hypothesis and the specific dynamic formulations about these groups. An additional objective is to evaluate the relative effects of other memorial variables such as serial position (primacy, recency, etc.) and ambiguity of meaning.

Methods Employed: A memory test was devised using as stimuli 28 pictures representing needs in H. A. Murray's system of personality. This test is administered individually to groups of subjects selected on the basis of diagnoses which assure some similarity of personality dynamics as well as to control groups. Significant differences between groups will be determined and related to psychoanalytic theory. Other findings will be related to general memory theory.

Patient Material: A portion of the data has been collected previously outside of PHS and includes the following:

30 hypertensive	(males)
30 ulcer	"
30 paranoid schiz.	"
30 homosexual	"

Additional groups of 30 are being collected for the following:
(figure in brackets indicate number presently tested)

asthma	(17)	(males)
colitis	(12)	"
arthritis	(10)	"
non-medical control	(21)	"
medical control	(0)	"

(Continued)

Major Findings: All of the completed groups show significant differences between each other in recall of the stimuli. Inspection of the results on the incompleted groups indicates similar differences. Some of the findings are congruent with psychoanalytic theory and others are not. Final analysis awaits completion of the groups.

Significance to NIMH Research: The significance of this study is that it adds systematic and controlled verification for a key theory used in the diagnosis and treatment of the psychiatrically ill and which at present rests largely on clinical evidence only. Some of the findings will suggest areas where modification of theory is required. The findings will demonstrate also the necessity for giving adequate weight to motivational variables in the general equation describing memory.

Proposed Course of the Project: In addition to completing the groups already started other psychiatric groups will be tested. These will include subjects who are being studied in other projects of NIMH and in related organizations.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH # 121 (C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF.	OTHER	TOTAL	PROF.	OTHER	TOTAL	
FY 1955	$3,250	1	-0-	1	1/2	-0-	1/2	None
FY 1956	$3,250	1	-0-	1	1/2	-0-	1/2	None

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S)(ITEM)

The Office of Management Interne Program, Career Service Section, Examination Division, Civil Service Commission is providing subjects and facilities for testing a normal control group.

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

None

Through an error in numbering,

there are no projects

122, 123 and 124

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Psychosomatic Investigations
LABORATORY

3. _____
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA

5. 125 (c)
SERIAL NO.

6. Psychophysiologic Aspects of Peptic Ulcer
PROJECT TITLE

7. Roger K. McDonald, M.D. and Morris B. Parloff, M.D.
PRINCIPAL INVESTIGATOR(S)

8. _____
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Project: Psychophysiologic Aspects of Peptic Ulcer.

Objectives: The objective of this study will be to determine any relationship which may exist between psychological state and gastric physiology.

Methods employed: Expressions of gastric secretory activity will be determined primarily by uropepsin excretion and the psychological testing situation will consist of interviews and a battery of tests.

Patient material: Will consist of adult male and female patients with and without active peptic ulcer. Those patients who do not have active peptic ulcer at the time of study must have convincing evidence of the actual presence of an ulcer at some time or times in the past.

Major findings: None to date.

Significance to MENTAL HEALTH Research: It is still necessary to gather a great deal of data in terms of characterizing the peptic ulcer personality and understanding the inter-relationship of certain personality aspects and the peptic ulcer diathesis. Studies will probably be carried out both in patients with known episodes of peptic ulcer and those who are at the time of study quiescent and others who have active peptic ulcers at the time of study.

Proposed course of project: Project will probably run for about a year. Again if certain observations indicate, detailed study would be indicated.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 125 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS PROF	OTHER	TOTAL	MAN YEARS PROF	OTHER	TOTAL	PATIENT DAYS
FY 1955	$5,724	1	1	2	1/3	1/3	2/3	150
FY 1956	$5,724	1	1	2	1/3	1/3	2/3	150

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Psychosomatic Investigations
LABORATORY

3. _____
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 126 (c)
SERIAL NO.

6. The relationship of standardized life situations to various physiological functions in the rat.
PROJECT TITLE

7. Roger K. McDonald, M.D.
PRINCIPAL INVESTIGATOR(S)

8. _____
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Project: The relationship of standardized life situations to various physiological functions in the rat.

Objectives: The objective of this project is to determine the various physiological functions in the rat which might be affected by altering his life situation in a manner described under the project entitled "The diabetogenicity of standardized doses of alloxan in the rat as a function of life experience." Here the general physiological alterations which might occur in altered life situations will be studied by system and further amplification to such factors in diabetes as the ability of the diabetic rat to tolerate stress and the support which a diabetic rat might manifest physiologically in a "love" or reward situation will be ascertained. Further relationships of the effect of reward and shock conditioning studies at different periods of the rat's development and the possible buffering effect of reward or "love" situations on the rat's resistance to shock situations will be ascertained.

Methods Employed: Various biochemical measurements will be made with the intent of covering the various endocrine systems and studies of the effect of these factors upon growth as an expression of development will be made. Other data which may be obtained in the form of quantifying the "anxiety" or ineffectiveness of the rat in various stress situations will be assessed.

Major Findings: None to date.

Significance to MENTAL HEALTH Research: The general philosophy of this study will be to reconstruct situations somewhat analogous to many postulated factors in human development as having a possible relation to somatic expression of disease. The simplicity of this situation as compared with the human situation is a major point in undertaking this work. It is felt that the correlation of the psychologic expressions with the physiologic alterations in the rat will be exceedingly helpful in understanding some of these rather complex phenomena of somatic expression of disease.

(continued on next page)

Project: The relationship of standardized life situations to various physiological functions in the rat (continued).

Proposed course of project: The project as stated covers a fairly diffuse area of research and a number of sub-projects will develop in all likelihood. It is felt that if this approach to life disease as determined by life situations seems fruitful, the approach might be continued over a matter of several years. It is anticipated that the studies of the rat in this situation will be constructed along a step-wise progression leading from the simplest type of study to the more complex.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 126 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$5,724	1	1	2	1/3	1/3	2/3	--
FY 1956	$5,724	1	1	2	1/3	1/3	2/3	--

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATION, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Psychosomatic Investigations
LABORATORY

3. _____
SECTION

4. _____ 5.127(c)
LOCATION (IF OTHER THAN BETHESDA SER.NO.

6. Psychophysiological factors in diabetes mellitus
PROJECT TITLE

7. Roger K. McDonald, M.D.
PRINCIPAL INVESTIGATOR

8. Morris B. Parloff, M.D.
OTHER INVESTIGATOR

9. PROJECT DESCRIPTION:

Project: Psychophysiological factors in diabetes mellitus

Objectives: The objective of this project is to study the inter-relationship between psychological and physiological factors in diabetes.

Methods employed: Assessment of the physiological state of the diabetic will rest on certain acceptable expressions of diabetes as measured in the chemical laboratory. The psychological evaluation will be accomplished through a system of interviews and testing techniques. In addition a check list of symptoms and subjective feeling will be made by the patient each day and this will be studied in relation to the physiological changes and the general behavior of the patient as observed by nurses and attending physicians. At certain times the physiologic state will be altered through changing the dietary or insulin administration program and any effects revealed through the psychological evaluation will be noted. At other times certain life situation effects on the status of the diabetes will be determined as expressed through the physiologic and psychologic tests.

Patient material: Adult males and adult females who have diabetes severe enough to require the use of insulin to control signs and symptoms.

Major findings: No findings have been obtained as the study is just getting under way. The program for bringing in diabetics is being developed and pilot studies on the physiologic test to be used and the selection of the most suitable psychological tests and techniques are being made.

(continued on next page)

Project: Psychophysiological factors in diabetes mellitus (continued).

Significance to MENTAL HEALTH Research: It has been recognized for a long time that many diabetics are very difficult problems in a therapeutic sense because of the unpredictability of the insulin requirements from one period to another. No satisfactory explanation of the phenomenon has been offered although there has probably been a general feeling by many physicians that psychological factors seem to bear a relationship to the differences in ease of controllability of diabetes. It is with the inter-relationship of the psychologic and physiologic factors that this study is concerned and it is felt that many important facts can be uncovered in this general area.

Proposed course of project: The project will probably last for about one year with the possibility that additional time will be required if certain of the observations indicate more detailed study.

[illegible]

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 127 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS PROF	OTHER	TOTAL	MAN YEARS PROF	OTHER	TOTAL	PATIENT DAYS
FY 1955	$5,724	1	1	2	1/3	1/3	2/3	200
FY 1956	$5,724	1	1	2	1/3	1/3	2/3	200

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Psychosomatic Investigations
LABORATORY

3. _____
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 128 (c)
SERIAL NO.

6. The diabetogenicity of standardized doses of alloxan in the rat as a function of life experience.
PROJECT TITLE

7. Roger K. McDonald, M.D.
PRINCIPAL INVESTIGATOR(S)

8. John B. Calhoun, M.D. and Morris B. Parloff, M.D.
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Project: The diabetogenicity of standardized doses of alloxan in the rat as a function of life experience.

Objectives: The objective of this project is to ascertain what role standardized life experiences may play in the resistance or the susceptibility of the rat to a chemically induced diabetes which results from death of the beta cells of the pancreas.

Methods Employed: Inbred Osborn-Mendel rats will be used in randomized litters. Three life situations will be employed in standardized cages built specifically for this type of study. First category will include rats which are not exposed to any undue life situation other than that which is ordinarily characteristic of the animal room. The second group will be shocked after a preceding sound signal. The third group will be placed into a "love" situation which will be accomplished either through a system of handling and gentling the rats or by granting a reward at the end of a sound signal.

Major Findings: None.

Significance to MENTAL HEALTH Research: The onset of diabetes mellitus in young people is observed frequently in the wake of an emotional loss situation such as occurs following the death of a parent, the separation of the parents, or removing the patient from a protective environment. This study is aimed primarily to determine whether the pancreatic islands producing insulin are more susceptible to the toxic effect of alloxan in different types of life situations. The physiological measurements which accompany the study will be aimed at determining the glucose levels and other related chemical phenomena.

Proposed course of project: The project will probably run for a considerable portion of time, the extent of which would be measured in months, particularly with the assumed necessity for giving detailed observations to certain factors in the situation.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 128 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS PROF	OTHER	TOTAL	MAN YEARS PROF	OTHER	TOTAL	PATIENT DAYS
FY 1955		Full time of investigators already accounted						
FY 1956		for in other projects						

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (SY SERIAL NO.(S) IF WITHIN NIH)

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. (a) Psychosomatic Investigations
(b) Clinical Biochemistry and Physiology
LABORATORIES

3. (a) Psychosomatic Service
(b) Clinical Physiology
SECTIONS

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 129 (c)
SERIAL NO.

6. Relationship of Psychological Effects of Lysergic Acid Diethylamide and Stress to Cerebral Blood Flow and Metabolism, and Personality.
PROJECT TITLE

7. Seymour Perlin, M.D. and Conan Kornetsky, PhD.
PRINCIPAL INVESTIGATORS

8. Louis Sokoloff, M.D., Laboratory of Neurochemistry, and Seymour Kety, M.D., Laboratory of Neurochemistry.
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Project: Relationship of Psychological Effects of Lysergic Acid Diethylamide and Stress to Cerebral Blood Flow and Metabolism, and Personality.

Objectives: To evaluate the response of normal and schizophrenic subjects to psychological stress induced by the technique of cerebral blood flow measurement, as well as to lysergic acid, and to correlate this response with psychological and psychiatric evaluations in addition to cerebral blood flow measurements.

Methods employed: Cerebral blood flow and metabolism measurement according to the nitrous oxide techniques of Kety and Schmidt; psychiatric interview with psychodynamic evaluation; psychological evaluation by Rorschach, Wendts Adjective Check List, Minnesota Multiphasic Personality Inventory; psychophysiological evaluation by polygraph techniques including conditioned galvanic skin response, respiratory rate plus Lysergic Acid Symptom questions; systemized individual group ratings of manifestation of anxiety. Periods of study include: (1) The period prior to the experimental situation; (2) The experimental situation which is divided into a control period and that following the introduction of lysergic acid.

Patient material: (1954 calendar year)

Admissions:		No.	Average Stay Days
Adult males	(1) normal	1	
	(2) schizophrenic		
Adult females	(1) normal	0	
	(2) schizophrenic	2	

(continued next page)

roject: Relationship of Psychological Effects of Lysergic Acid Diethylamide and Stress to Cerebral Blood Flow and Metabolism, and Personality. (continued)

Major Findings: Preliminary Report of Effects of Lysergic Acid on Cerebral Blood Flow and Metabolism is found in complementary project submitted by the Laboratory of Neurochemistry. Collection of additional data is needed.

Significance to MENTAL HEALTH Research: This is an attempt to quantify psychological factors in the personality of normal and schizophrenic individuals' response to psychological and pharmacological (e.g. lysergic acid) stress. This would contribute to understanding of the importance of the psychological factor in explaining the wide range of response to stress.

Proposed course of project: The present technique will be used to study a group of schizophrenic and normal subjects. In this technique, other increasingly important drugs such as chlorpromazine or Rauwolfia serpentina (serpasil) may also be utilized.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 129 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS PROF	OTHER	TOTAL	MAN YEARS PROF	OTHER	TOTAL	PATIENT DAYS
FY 1955	$4,797	1	1	2	1/3	1/3	2/3	350
FY 1956	$4,797	1	1	2	1/3	1/3	2/3	350

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1

Section on Cerebral Metabolism, Laboratory of Neurochemistry.

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

R.P.C. - 3
December 1954

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH 129 (c)
SERIAL NO.

16. LIST PUBLICATIONS OTHER THAN ABSTRACTS FROM THIS PROJECT DURING CALENDAR YEAR 1954:

17. LIST HONORS AND AWARDS TO PERSONNEL RELATING TO THIS PROJECT DURING CALENDAR YEAR 1954:

Member of Panel on "Problems in the Laboratory Study of Emotions and Bodily Functions" of the Southern Regional Research Conference of the American Psychiatric Association. Prospectus of this project was presented by Dr. Seymour Perlin.

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. (a) Laboratory of Psychosomatic Investigations
(b) Laboratory of Psychology
LABORATORIES

3. (a) Psychosomatic Service
(b) Section on Personality and its Deviations
SECTIONS

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 130 (c)
SERIAL NO.

6. A Psychodynamic Study of Psychosomatic Patients via the Use of Lysergic Acid Diethylamide.
PROJECT TITLE

7. Seymour Perlin, M.D. and Boris Iflund, PhD.
PRINCIPAL INVESTIGATORS

8. _____
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Project: A Psychodynamic Study of Psychosomatic Patients via the Use of Lysergic Acid Diethylamide.

Objectives: To determine psychodynamic patterns (conscious and unconscious) in certain psychosomatic illnesses; to evaluate the response of psychosomatic patients to lysergic acid diethylamide; and, to identify in such patients psychodynamic patterns which may be clarified or may emerge under the influence of this drug.

Methods employed: Determination of psychodynamic patterns will be made by means of: Medical evaluation of disease process with note of historical development; psychiatric interview with psychodynamic formulation; psychological evaluation by Rorshach, Thematic Apperception Test, Selection Recall Test, Sentence Completion Test, Body Image Test, Minnesota Multiphasic Inventory. The evaluation of the response of psychosomatic patients to lysergic acid diethylamide will be made on the basis of a repetition of these tests. In order to provide a control for familiarity with the test stimuli, items will be equated and half repeated just before drug administration and the remaining ones during maximal drug effect. In this way, both control and drug performance may be compared with the original performance. The two sets of differences can be studied to determine the drug effect. In addition, drug effect is studied via Wendt's Adjective Check List, a Lysergic Acid Symptom Questionnaire, minor physiological procedures, and audograph recording of free and controlled associations aimed at investigating the relationship between unconscious phantasies and somatic equivalents.

(continued on next page)

Project: A Psychodynamic Study of Psychosomatic Patients via the Use of Lysergic Acid Diethylamide. (continued)

Patient material: (1954 calendar year)

		No.	Average Stay Days
Admissions:	Adult males	2	21
	Adult females	1	21

Major findings: With the limited number of patients seen to date, the results indicate that the described method is suitable for our objectives.

Significance to MENTAL HEALTH Research: Elucidation of psychodynamic patterns in psychosomatic illnesses by means of systematic study with controlled techniques will be of value in adequate evaluation and treatment of such illnesses.

Proposed course of project: The present technique will be used to study psychosomatic patients, concentrating on certain diagnostic categories in order to obtain a larger sample. In the future, it may be possible to obtain follow-up material by establishing liaison with a psychosomatic disease treatment (psychotherapy) unit.

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 130 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS PROF	OTHER	TOTAL	MAN YEARS PROF	OTHER	TOTAL	PATIENT DAYS
FY 1955	$4,797	1	1	2	1/3	1/3	2/3	1050
FY 1956	$4,797	1	1	2	1/3	1/3	2/3	1050

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Psychosomatic Investigations
LABORATORY

3. Psychosomatic Service
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 131 (c)
SERIAL NO.

6. Coordination of Clinical Care with Research Program of the Psychosomatic Service.
PROJECT TITLE

7. Seymour Perlin, M.D., Acting Chief, Psychosomatic Service
PRINCIPAL INVESTIGATOR

8. _____
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Project: Coordination of Clinical Care with Research Program of the Psychosomatic Service.

Objectives and Methods Employed: Operation of the ward devoted to psychosomatic illnesses includes coordination of several research projects with a clinical care program. There has been cooperation between the Psychosomatic Service with a number of sections of the National Institute of Mental Health, in addition to sections of other institutes in supplying specimens, information, etc. Diagnostic categories include schizophrenia, normal controls and psychosomatic illnesses such as bronchial asthma and anorexia nervosa. The role of the nurse in the short-term experimental studies as well as in the overall psychiatric and medical care of the patients on a psychosomatic service has been a subject for intensive collaborative study by the nursing and clinical administration. A preliminary study of social interaction on the service, between patients and between patients and staff, has been completed (in collaboration with the Laboratory of Socio-Environmental Studies). Structural changes include the equipping of a room for cerebral blood flow and metabolism studies and also for psychophysiological testing.

Patient material: (July 1, 1954 to June 30, 1955)

		No.	Average Stay Days
Admissions:	Adult males	19	57
	Adult females	15	56

Major Findings: The program shows that the very concept of psychosomatic service and research needs intensive study by the personnel, whose training has been variously specialized; the tendency exists for compartmentalization, rather than a multi-disciplined operational approach. The interaction of the variety of patients composing such a service has been an effective way of gaining another perspective on this same problem, but these findings are a preliminary order.

(con't next page)

Project: Coordination of Clinical Care with Research Program of the Psychosomatic Service. (continued)

Significance to MENTAL HEALTH Research: The designation of illness as "psychosomatic" denotes the need for a multi-discipline approach. Since psychosomatic wards as such have a relatively brief history, the creation of one is in itself an important problem for mental health research. What disciplines should be represented, the question of emphasis re medically or psychiatrically trained personnel, the limitation of investigation to certain illnesses, the daily modus vivendi all require study in order to bring about a ward devoted to an operational concept of "psychosomatic" rather than one divided into areas of specialized interests, which could be transferred to a medical ward on one hand or a psychiatric ward on the other.

The emotional factor as etiological or contributory in the course of somatic pathology has been a subject for much theoretics and speculation, but for relatively few systematic and controlled studies. A psychosomatic service should eventually provide a focal area for relevant clinical studies.

Proposed course of project: Study should be made of the development of psychosomatic services in other areas, with particular attention to composition and specialization of personnel. It may be necessary and/or desirable to collaborate with other services devoted to long-term follow-up (e.g. a psychosomatic psychotherapy or medical therapy unit) to provide a matrix for short-term studies presently underway here. Socio-environmental studies may be continued to further investigate the interaction of patients who suffer from continum of illness, in which either somatic or psychiatric factors may predominate.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-131 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS PROF	OTHER	TOTAL	MAN YEARS PROF	OTHER	TOTAL	PATIENT DAYS
FY 1955	$4,434	1	1	2	1/3	1/3	2/3	5824
FY 1956	$4,434	1	1	2	1/3	1/3	2/3	6552

Beginning of January, 1955 - Operating capacity of ward: 16
Census: 16

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Child Research
LABORATORY OR BRANCH

3. _____
SECTION

4. Vicksburg, Mississippi
LOCATION (IF OTHER THAN BETHESDA)

5. 132 (c)
SERIAL NO.

6. The Effects of Disaster (Tornado) on Children
PROJECT TITLE

7. Donald A. Bloch, M.D., and Earle Silber, M.D.
PRINCIPAL INVESTIGATOR(S)

8. Stewart Perry, M.A.
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Project: The effects of stress on a large group of children.

Objectives: To investigate the various ways that children can interpret and experience disaster. To investigate the explanations used by parents and teachers in helping children to deal with their anxiety. To explore research possibilities in studying the psychological effects of disaster in a community.

Methods Employed: 600 Teachers, parents and children interviewed in the community of Vicksburg, Mississippi; both individually and in groups. Questionnaires circulated to parents. Follow-up interviews of selected sample of parents.

Major Findings: The patterns of community reaction are described, as well as common types of defense mechanisms utilized in dealing with the impact of stress situation. Dynamics of parent-child interaction were explored. Relationship of children's disturbances was correlated with certain types of involvement events and patterns of parental handling. An assessment of community mental health needs was made.

Significance to MENTAL HEALTH (Name of Institute) Research: There is a need for exploring the determinants of difficulty in integration of trauma occurring during childhood. This research extends into the area of what kinds of recommendations can be made to a community in meeting mental health needs following a disaster and in meeting the emotional needs of children following such an experience.

Proposed course of project: The analysis of data has now been completed. Reports to be published are in preparation.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-132 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$7,148	2	1	3	2/3	1/2	1-1/6	
FY 1956	NONE							

12. BUDGET ACTIVITY:

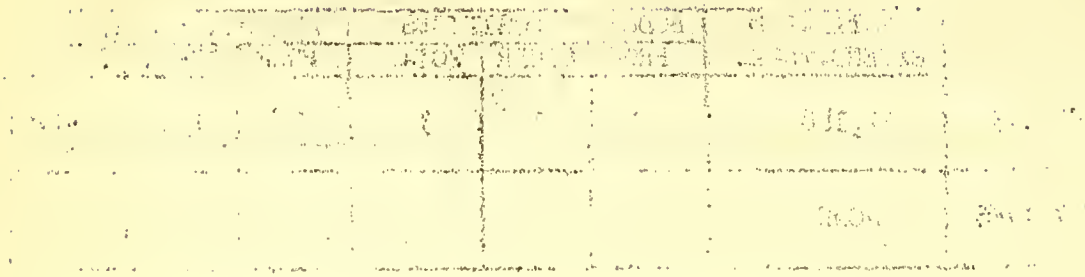
RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S)(ITEM 1)

National Research Council (1955)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)



R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Child Research
LABORATORY OR BRANCH

3. _____
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 133 (c)
SERIAL NO.

6. The Relationship of Individual Psychotherapy to Milieu Therapy
PROJECT TITLE

7. Fritz Redl, Ph.D., Earle Silber, M.D., Gene Gordon, M.D., Leonard Siegel, M.D., and Donald Bloch, M.D.
PRINCIPAL INVESTIGATOR(S)

8. _____
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION: Clinical Research

Project: Definition of therapeutic techniques with disturbed children.

Objectives: To define the most useful balance between therapeutic techniques applied in individual psychotherapeutic interviews and those applied in the living setting of the child.

Methods Employed: Detailed clinical records are kept about the behavior of patients, child care workers, ward administrator and individual therapists. Regular conferences are held to re-evaluate the distribution of therapeutic responsibilities. From time to time, different therapeutic designs and types of therapeutic roles are given a trial period of operation.

Patient Material:

		No.	Average Stay Days
Admissions:	Children male	22	101

Major Findings: To date, observations have been made on three types of therapeutic design: treatment without individual psychotherapy, treatment with optional individual psychotherapy, and treatment with obligatory psychotherapy for all patients. The data is in the process of analysis, and clinical observations will be reported within the next six months.

R.P.C. - 1 (continued) (The Relationship of Individual Psychotherapy to
December 1954 Milieu Therapy)

Significance to MENTAL HEALTH Research: At the present time, there is controversy about the relative value of individual psychotherapy as opposed to milieu therapy for hyper-aggressive children. Some treatment centers operate relying heavily on psychotherapy and others relying on milieu therapy. To our knowledge, this treatment center is the only one in the country which has sufficient flexibility to provide both methods concurrently or to vary, from time to time, a balance between these two therapeutic approaches. Research on this question should clarify the proper design for future treatment centers for this type of child.

(Name of Institute)

Proposed course of project: It is planned that this project will be the major focus of the Laboratory for an indefinite period in the future, with different therapeutic designs being given a trial period of six months to one or two years each.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH .133 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$23,901	5	2	7	3	1-1/2	4-1/2	2220
FY 1956	$31,049	5	2	7	4	2	6	2220

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

R.P.C. - 3
December 1954

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH 133 (c)
SERIAL NO.

16. LIST PUBLICATIONS OTHER THAN ABSTRACTS FROM THIS PROJECT DURING CALENDAR YEAR 1954:

Redl, Fritz, "Child Study in a New Setting". Children, 1:15-20, January, 1954.

Bloch, Donald A., "Some Concepts in the Treatment of Delinquency". Children, 1:49-55, February, 1954.

17. LIST HONORS AND AWARDS TO PERSONNEL RELATING TO THIS PROJECT DURING CALENDAR YEAR 1954:

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Child Research
LABORATORY OR BRANCH

3. _____
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 134 (c)
SERIAL NO.

6. Case Study of a 13-Year-Old Fire-Setter: A Catalyst For The Growth of a New Residential Treatment Unit
PROJECT TITLE

7. Leonard Siegel, M.D.
PRINCIPAL INVESTIGATOR(S)

8. _____
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Clinical Research

Project: Case study.

Objectives: To clearly describe an unusual clinical case, together with observations as to the etiology and the psychopathology.

Methods Employed: Intensive psychotherapeutic investigation by means of interviewing both patient and mother. Observations were also made about this patient's behavior in relation to his peers, the child care workers, teachers, ward administrator, and individual therapist.

Patient Material:

		No.	Average Stay Days
Admissions:	Child male	1	120

Major Findings: The case illustrated a peculiar type of symbiotic relationship between mother and patient, the unusual ability of the mother to prevent treatment of the son by maintaining his delusions, the unusual ability of both patient and mother to create both anxiety and anger in staff members, and an unusual perceptiveness in exploiting areas of confusion in the staff regarding patient care policies.

Significance to MENTAL HEALTH (Name of Institute) Research: Few detailed case reports describing this type of psychopathology exist in literature. Out of such reports may be formulated hypothesis for future research and for new treatment methods.

Proposed course of project: This case will be reported in March, 1955, at the annual meeting of The American Orthopsychiatric Association.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 134 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$4,712	1	0	1	1/3	0	1/3	120
FY 1956	NONE							

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO.(S)(ITEM 1)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Child Research
LABORATORY OR BRANCH

3. _____
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 135 (c)
SERIAL NO.

6. Children's Social Perception of Adult Roles in a Treatment Center
PROJECT TITLE

7. Earle Silber, M.D.
PRINCIPAL INVESTIGATOR(S)

8. _____
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION — Clinical Research

Project: Development of a method for studying social perception in children.

Objectives: To explore ways of defining the criteria used by pre-adolescent children in coming to a decision about the social responsibilities carried by each of the adults in his environment.

Methods Employed: Interviews of normal children using photo sort methods in response to open-ended questions. All adults in the child's environment were photographed, and these photographs were given to the child to aid him in revealing his perceptions of their roles.

Patient Material:

		No.	Average Stay Days
Admissions:	Children male	8	30

Major Findings: Preliminary experience was gained in problems of obtaining these types of judgements and in administering the interviews. Further work on methodology is necessary with different groups of patients before the data can be reported.

Significance to MENTAL HEALTH (Name of Institute) Research: One of the difficulties in management and therapy of a certain type of disturbed child lies in his unusual perceptiveness of adult role conflicts. It would be valuable, as a diagnostic tool, for certain types of disturbed children if a test of social perception could be developed.

Proposed course of project: At some time in the future, it is planned to refine this interview method further and to apply it to various groups of children, both in and outside of the Clinical Center.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 135 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$2,443	1	0	1	1/3	0	1/3	240
FY 1956	NONE	0		0	0		0	0

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO.(S)(ITEM 1,

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO. (S) IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Child Research
LABORATORY OR BRANCH

3. _____
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 136 (c)
SERIAL NO.

6. Studies of Learning Disabilities in Hyper-aggressive Children
PROJECT TITLE

7. Ruth Newman, M.A.
PRINCIPAL INVESTIGATOR(S)

8. Fritz Redl, Ph.D.
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION: Clinical Research

Project: Reading and learning dysfunctions.

Objectives: To study the relationships between perceptual and conceptual disabilities and psychopathology of individual disturbed children.

Methods Employed: Through the use of the school situation, various learning tests will be given to each child from time to time, including tests of achievement, etc. These findings will be correlated with data obtained in psychotherapy as to the meaning of the school tasks in order to elucidate problem areas.

Patient Material: (1954 Calendar year)

		No.	Average Stay Days
Admissions:	Children male	22	101

Major Findings: No findings can be reported, as the project is in a developmental, exploratory phase; nevertheless, detailed clinical records have been kept about each child's learning problems which can be later correlated with data on psychopathology.

R.P.C. - 1 (continued) (Studies of Learning Disabilities in Hyper-aggressive Children)

Significance to MENTAL HEALTH Research: In view of the frequent association of learning problems with aggressive, acting out behavior and the dearth of studies in which concurrent information has been available both from the school and from the psychiatrist, exploration of this area seems merited.
(Name of Institute)

Proposed course of project: It is planned that this study will continue indefinitely as an important area of continuing explorations and research.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 136 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$10,900	1	2	3	1/3	1/2	5/6	2220
FY 1956	$17,912	2	3	5	3/4	1	1-3/4	2220

12. BUDGET ACTIVITY:

RESEARCH /X/ ADMINISTRATION /_/

REVIEW & APPROVAL /_/ TECHNICAL ASSISTANCE /_/

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Child Research
LABORATORY OR BRANCH

3. _____
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 137 (c)
SERIAL NO.

6. Classroom Intervention Techniques with Hyper-aggressive Children
PROJECT TITLE

7. Ruth Newman, M.A., and Fritz Redl, Ph.D.
PRINCIPAL INVESTIGATOR(S)

8. _____
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION: Clinical Research

Project: Therapeutic techniques in the school situation.

Objectives: To further clarify which therapeutic techniques are more appropriate for dealing with hyper-aggressive children at various phases of therapy

Methods Employed: Both retrospective participant observations and various types of recordings (including tape recordings of classroom behavior) are planned. At the present time, teachers are experimenting with a variety of materials, games, and attitudes in order to be able to involve the child in the school learning process. These materials and activities are gauged to fit into the development level of behavior which the child exhibits.

Patient Material: (1954 Calendar Year)

		No.	Average Stay Days
Admissions:	Children male	22	101

Major Findings: The project has been recently initiated and no definitive findings can be reported. The first cases studied suggested a special sequence of school problems which may be characteristic of hyper-aggressive children undergoing residential therapy.

R.P.C. - 1 (continued) (Classroom Intervention Techniques With Hyper-
December 1954 Aggressive Children

Significance to MENTAL HEALTH Research: There is great need for helping teachers deal with hyper-aggressive behavior in pre-adolescent children so as to serve the teaching goals, the needs of the child group and the needs of the individual child. Since the setting permits flexible experimentation with various approaches, it is hoped that more may be learned about intervention techniques appropriate to the school.

(Name of Institute)

Proposed course of project: More systematic behavior samples will be started during the Spring of 1955. Teaching techniques will be compared with studies of milieu therapy and individual therapy techniques.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 137 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$11,000	2	0	2	2/3	0	2/3	2220
FY 1956	$20,212	3	1	4	1-1/2	1	2-1/2	2220

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO.(S) (ITEM

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Child Research
LABORATORY OR BRANCH

3. _____
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 138 (c)
SERIAL NO.

6. Techniques of Aggressive Acting Out Employed by Pre-Adolescent Boys
PROJECT TITLE

7. David Kaplan, M.S.W.,* and D. Wells Goodrich, M.D.
PRINCIPAL INVESTIGATOR(S)

8. Fritz Redl, Ph.D.
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION: Clinical Research

Project: Development of a system for describing aggressive behavior in operational terms.

Objectives: To be able to distinguish systematically between various types of hyper-aggressive children by developing a reliable method for describing types of aggressive behavior in this age group.

Methods Employed: Detailed descriptions of anger episodes are collected which provide information about the precipitating events for the child's anger, about the angry behavior itself, and about the resolution of the angry feelings. Weekly discussions are held to clarify a frame of reference. Later, systematic collection of behavior samples will be made in order to establish the reliability and the validity of the method.

Patient Material:

		No.	Average Stay Days
Admissions:	Children male	22	101

Major Findings: The project is in a pilot phase. More than thirty techniques of provocation for producing anger in others have been delineated. Methods for describing the anger itself are under consideration.

* Of the Clinical Center Department of Social Work

R.P.C. - 1 (continued) (Techniques of Aggressive Acting Out Employed by Pre-Adolescent Boys)
December 1954

Significance to MENTAL HEALTH Research: There is need for better methods to diagnose types of aggressive acting out behavior since, at present, all these behavior disorders tend to be grouped together indiscriminately. It is difficult to speak of specific treatment methods until one can define the behavior pathology of these behavior disorders more rigorously.
(Name of Institute)

Proposed course of project: Systematic behavior sampling will begin during the next calendar year following a further period devoted to development of the method.

R.P.G. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 138 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$4,179	1	1/2	1-1/2	1/3	1/2	5/6	2220
FY 1956	$4,179	1	1/2	1-1/2	1/3	1/2	5/6	2220

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO.(S)(ITEM 1)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

R.P.C. - 3
December 1954

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH 138 (c)
SERIAL NO.

16. LIST PUBLICATIONS OTHER THAN ABSTRACTS FROM THIS PROJECT DURING CALENDAR YEAR 1954:

Goodrich, D. W., "The Aggression Potential of Two Types of Objects When Used With Aggressive Children", American Journal of Occupational Therapy, 8:165-170, 1954.

17. LIST HONORS AND AWARDS TO PERSONNEL RELATING TO THIS PROJECT DURING CALENDAR YEAR 1954:

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Child Research
LABORATORY OR BRANCH

3. _____
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 139 (c)
SERIAL NO.

6. Staff-Patient and Patient-Patient Interaction Studies
PROJECT TITLE

7. D. Wells Goodrich, M.D., and Fritz Redl, Ph.D.
PRINCIPAL INVESTIGATOR(S)

8. Donald Boomer, Ph.D., Allen Dittman, Ph.D., and Boris Iflund, Ph.D.
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION — Clinical Research

Project: Definition of interaction patterns in a residential treatment center.

Objectives: To systematically sample inter-personal behavior from the three principle areas of residential treatment. These are: the life space of the child, the individual interview, and the school.

Methods Employed: 1. Non-participant behavior observations which are tape-recorded immediately following the observation, and in which the observer is interviewed in order to obtain more complete information. 2. Tape recordings of group behavior and of individual interviews. 3. Sound movies. 4. Tape recordings from a mobile transmitter which is worn by a participant in the behavior.

Patient Material: (1954 Calendar Year)

		No.	Average Stay Days
Admissions:	Children male	22	101

Major Findings: During the past year, about 50 samples of group behavior have been obtained and analysis of this data is just beginning.

Significance to MENTAL HEALTH (Name of Institute) Research: The first significance of this project lies in the development of new techniques for studying complex interactions. Several of the recording methods are so new that explorations into the feasibility of using them in a residential treatment center with disturbed children should prove valuable. This project will complement studies of therapeutic roles by providing data about the actual inter-personal events between staff and patients.

Proposed course of the project: During the coming year, further work on methods will continue and the same data will be analyzed according to several different theories of inter-personal behavior.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 139 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$2,524	1	0	1	1/3	0	1/3	2220
FY 1956	$2,524	1	0	1	1/3	0	1/3	2220

12. BUDGET ACTIVITY:

RESEARCH /X/ ADMINISTRATION /_/

REVIEW & APPROVAL /_/ TECHNICAL ASSISTANCE /_/

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

Laboratory of Psychology, NIMH, Serial No. 117 (c)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS,) IDENTIFY SUCH RESEARCH: (BY SERIAL NO. (S) IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Child Research
LABORATORY OR BRANCH

3. _____
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 140 (c)
SERIAL NO.

6. Operational Definition of Staff Roles in a Residential Child Treatment Operation
PROJECT TITLE

7. Wells Goodrich, M.D., and Donald S. Boomer, Ph.D.
PRINCIPAL INVESTIGATOR(S)

8. _____
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Laboratory Research

Project: Staff role definition.

Objectives: To delineate the basic assumptions and the personal and group values which underlie the professional conduct of the major personnel in a residential treatment operation, in this case, Children's Service, NIMH.

Methods Employed: The three major treatment foci are ward activities, school, and individual psychotherapy. Goals and attitudes of counselors, teachers and therapists will be systematically mapped through the use of the critical incident technique. This involves regular interviewing of each staff member in these three categories concerning recent staff-patient interactions which he observed or participated in and which he felt to be either singularly effective or ineffective in terms of the treatment goals of his particular phase of the total operation.

As these critical incidents are gathered and categorized certain axes or dimensions begin to emerge, which, by indirection and implication, define the various staff roles as the occupants of these roles see them.

Major Findings: The project is just under way, and since an extended period of interviewing must precede the analysis of the data, no findings are yet available.

R.P.C. - 1 (continued) (Operational Definition of Staff Roles in a Residential Child Treatment Operation)
December 1954

Significance to MENTAL HEALTH Research: When residential care of disturbed children is thought of as treatment rather than mere custody, then all phases of the operation become treatment-relevant: games, eating, and school, no less than traditional psychotherapy. Despite overlap, each phase has distinctive features which can be defined in terms of the goals of that phase and the ways in which personnel operate with respect to these goals. Such a conceptual framework is basic to many of the complex research questions which grow out of this operation, and such a framework will be useful for later projects by providing criteria for evaluating behavior.
(Name of Institute)

Proposed course of project: The interviewing phase of this project will be completed probably during fiscal year 1955. Analysis of the data and direct application of findings to related research projects will extend well into 1956. One contemplated application of the findings is their use in developing criteria and instruments for selecting staff people for these various categories.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 140 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$2,524	1/3		1/3	1/3		1/3	2220
FY 1956	$2,524	1/3		1/3	1/3		1/3	2220

12. BUDGET ACTIVITY:

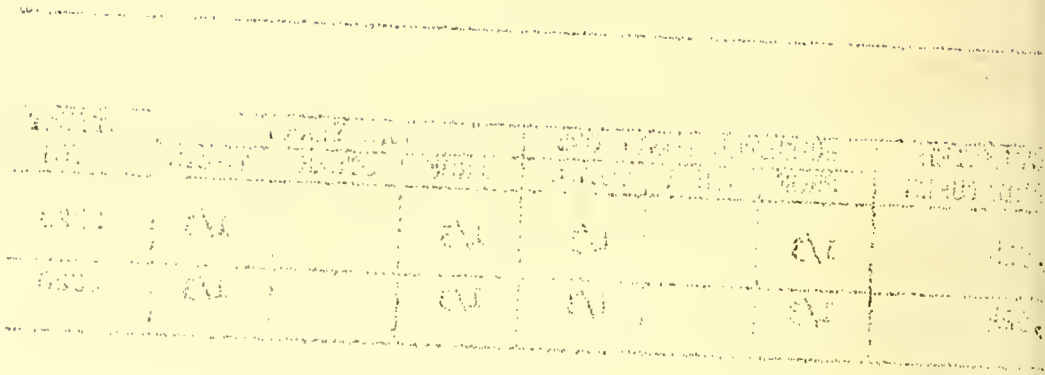
RESEARCH [X] ADMINISTRATION [ ]

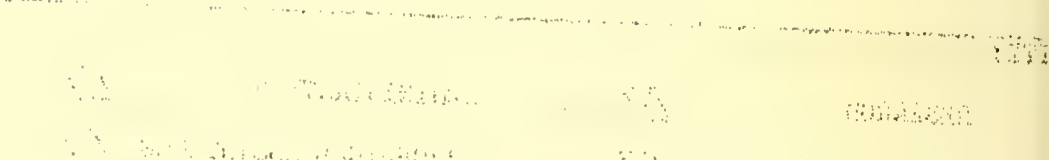
REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

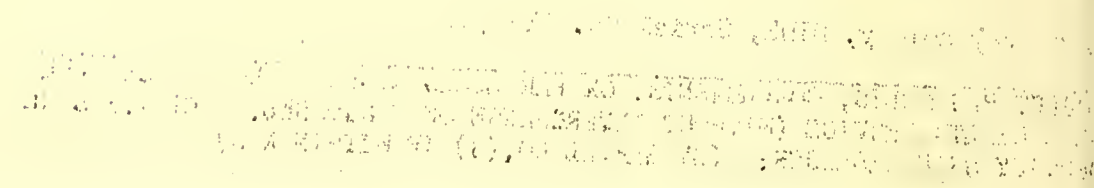
13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO.(S) (ITEM 1)

Laboratory of Psychology, NIMH, Serial No. 116 (c)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)







R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Laboratory of Child Research
LABORATORY OR BRANCH

3. _____
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 141 (c)
SERIAL NO.

6. Studies of Behavior Reporting by Child Care Workers
PROJECT TITLE

7. Jay Maxwell, M.D., and Florence Black, M.S.W.
PRINCIPAL INVESTIGATOR(S)

8. D. Wells Goodrich, M.D.
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION — Clinical Research

Project: The use of descriptive behavior reports in child residential therapy.

Objectives: To further clarify the values of daily behavior reports as a method of communication about therapeutic issues, as a method of training for child care workers, and as a method of judging workers' performance indirectly.

Methods Employed: Content analyses of behavior reports are carried out so as to sample each worker's reporting about each child. Interviews of staff members were carried out to get at criteria for judging the content of behavior reports. The degree of agreement and lack of agreement about the type of behavior most valuable to record was measured with rank order correlation methods.

Patient Material: (1954 Calendar Year)

		No.	Average Stay Days
Admissions:	Children male	22	101

Major Findings: Preliminary analysis revealed that the staff was divided into several sub-groups with differing values regarding what behavior is therapeutically most relevant. Areas of agreement and disagreement among the staff were differentiated. A method for analyzing behavior reports in order to assess training needs was explored.

Significance to MENTAL HEALTH Research: (Name of Institute) There is controversy about the practical usefulness of extensive daily behavior reports in institutional therapy. There is need to define specifically which functions in the communication system are best carried out by means of reports and which through other communication channels.

Proposed course of the project: Continuing exploration of this area will be supplemented from time to time by a carefully designed, short-term project in order to shed light on what is the most useful communications structure for the residential treatment center.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 141 (c)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$9,069	2		2	2/3		2/3	2220
FY 1956	NONE	0		0	0		0	0

12. BUDGET ACTIVITY:

RESEARCH /X/ ADMINISTRATION /_/

REVIEW & APPROVAL /_/ TECHNICAL ASSISTANCE /_/

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(s)(ITEM 1)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

R.P.C. - 1
December 1954 Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Clinical Investigations
LABORATORY OR BRANCH

3. Adult Psychiatric
SECTION

4.
LOCATION (IF OTHER THAN BETHESDA)

5. 142(C)
SERIAL NO.

6. Influence of the early mother-child relationship in the later development of schizophrenia.
PROJECT TITLE

7. Murray Bowen, M.D.
PRINCIPAL INVESTIGATOR(S)

8. Ervin Goffman, Ph.D., William C. Jenkins, M.D., Lyman Wynne, M.D., Robert Dysinger, M.D., Mrs. Thais Fisher, Social Work.
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: This project is directed at an area of growing evidence that certain conditions exist in the very early relationship between mother and infant which sets the stage for certain life-long intense attachments between mother and child which impedes the child's development into adult emotional maturity, and which may set the stage for the later development of clinical schizophrenia. The project is designed to gather more detailed data, to help validate or disprove existing ideas about it, and to check the belief that the presence of mother is beneficial to the treatment of schizophrenia.

Methods employed: To bring patient and mother together in a structured hospital ward where an attempt is made to maintain the most ideal treatment environment. This permits a maximum of readily available observations in a setting where the emotional climate can be more easily defined and controlled, and where there is minimal interference of external environmental forces on the primary mother-patient relationship. Both mother and daughter are provided with psychotherapeutic relationships to help define the emotional problems of each.

Patient material: The group is kept small to provide an intense study over a long period. Two young women were selected who had intense infantile attachments to mothers who were available to spend all, or a good portion of their time, in the hospital with the patients. Women were chosen because the ward setting adapted itself better for women. A third pair will be added in early 1955, and a few others may be added as facilities and staff permit.

Major findings during the year: After two months, the project would appear to be more promising than anticipated. It has been easier than expected to structure a favorable ward setting. The observational material has been favorable. The initial improvement has been surprisingly good. Whether improvement is inherent in the method remains to be seen, but it appears that the presence of mother is a major factor in the improvement.

Significance to MENTAL HEALTH research: There are indications that this may be one of the most important areas of psychiatric and psychological research. Few settings other than the Clinical Center could provide either the facilities, the staff, or the atmosphere for such a project.

Proposed Course of the Project: This entire area of investigation is big and vague and largely unexplored. This project might well be a kind of pilot study to point the way to many more detailed and specific studies in the future. This project itself might be expected to continue several years.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 142(C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS PROF	OTHER	TOTAL	MAN YEARS PROF	OTHER	TOTAL	PATIENT DAYS
FY 1955	$19,155	4	1	5	2/3	1/2	1-1/6	
FY 1956	$19,155	4	1	5	2/3	1/2	1-1/6	

12. BUDGET ACTIVITY:

RESEARCH ☐ ADMINISTRATION ☐

REVIEW & APPROVAL ☐ TECHNICAL ASSISTANCE ☐

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10)

Laboratory of Socio-Environmental Studies

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDSO, IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

ANALYSIS OF NIH PROGRAM ACTIVITIES

Project Description Sheet

1. National Institute of Mental Health — INSTITUTE
2. Clinical Investigations — LABORATORY OR BRANCH
3. Adult Psychiatric Service — SECTION
4. _____ — LOCATION (IF OTHER THAN BETHESDA)
5. 143(C) — SERIAL NO.
6. The Effects of Lysergic acid diethylamide (LSD-25) on psychological processes, and their relation to clinical depersonalization and schizophrenia — PROJECT TITLE
7. Charles Savage — PRINCIPAL INVESTIGATOR(S)
8. Edward Evarts, Louis Cholden — OTHER INVESTIGATORS
9. PROJECT DESCRIPTION

Project: The effects of lysergic acid diethylamide (LSD-25) on psychological processes.

Objectives: To study artificially induced psychoses and delineate their relation to schizophrenic processes and depersonalization.

Methods employed: LSD is given to volunteer subjects and schizophrenic patients and patients with clinical depersonalization. Their verbal productions before, during, and after LSD are recorded, compared and analyzed.

Patient material: (1954 calendar year)

		No.	Average stay Days
Admissions:	Adult males	1	146
	Adult females	3	185
	Conscientious Objector Males	3	164
	Adult Females	4*	120

Outpatients: Number of patients - 3 Number of visits - 180

Major Findings: Feelings of unreality characterize both the onset of the schizophrenic process and LSD intoxication.

Significance to MENTAL HEALTH Research: More general recognition of the importance of feelings of unreality may lead to earlier diagnosis of schizophrenia.

Proposed Course of Project: To attempt to utilize LSD to elucidate the meaning of schizophrenic processes and language.

*Spring Grove State Hospital, Catonsville, Maryland

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 143(C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$9,300	1	1	2	2/3	1/3	1	793 In 160 OPD ~~180**~~
FY 1956	$9,300	1	1	2	2/3	1/3	1	970 In 160 OPD

**Spring Grove State Hospital, Catonsville, Md.

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITME 1)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCHD DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

R.P.C. - 3
December 1954

Analysis of NIH Program Activities

Honors, Awards, and Publications Sheet

15. NIMH 143(C)
SERIAL NO.

16. LIST PUBLICATIONS OTHER THAN ABSTRACTS FROM THIS PROJECT DURING CALENDAR YEAR 1954:

Charles Savage: Variations in Ego Feeling Induced by Lysergic Acid Diethylamide (LSD-25). Accepted by the PSYCHOANALYTIC REVIEW

Analysis of NIH Program Activities

Project Description Sheet

National Institute of Mental Health — INSTITUTE
2. Clinical Investigations — LABORATORY OR BRANCH

Adult Psychiatric Service — SECTION
4. _____ — LOCATION (IF OTHER THAN BETHESDA)
5. 144(C) — SERIAL NO.

A Method of Treating Regressed Schizophrenic Patients — PROJECT TITLE

Charles Savage and Arlyn Charlton — PRINCIPAL INVESTIGATOR(S)
8. _____ — OTHER INVESTIGATORS

PROJECT DESCRIPTION

Project: A method of treating regressed schizophrenic patients.

Objectives: To study the nurse-doctor-patient relation in the treatment of schizophrenics. To determine if intensive nursing care can establish meaningful communication with a patient and if such communication can be utilized in psychotherapy.

Method employed: The nurse devotes four hours a day to the care of the patient and spends one hour discussing the patient with the doctor.
The doctor sees the patient briefly.
The nurse and doctor study jointly the problems arising between nurse and patient, patient and doctor, and doctor and nurse.
Together they plan the patient's treatment.

Patient material: (1954 calendar year)

		No.	Average Stay Days
Admissions:	Adult females	1	269

Major findings: Meaningful communication can be established with a regressed schizophrenic patient by this method.

Significance to MENTAL HEALTH Research: This finding suggests that while the nurse is customarily assigned a secondary role in the treatment of schizophrenics her role is actually the most important one in developing a relationship with the patient. This finding also suggests that more economical use of nursing personnel may be obtained by having each nurse responsible for a few patients rather than for all the patients on the ward. It illustrates the value both for the collecting of data and for establishing a relationship in doctor and nurse working in close collaboration

Proposed course of project: To determine if the improved communication and relationship obtained can lead to clinical improvement of a patient who is untreatable by other means. Another regressed, chronic patient will be added to the project.

Analysis of NIH Program Activities

Budget Data Sheet

NIMH
.0. 144(C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$4,200	1		1	1/3		1/3	487
FY 1956	$4,200	1		1	1/3		1/3	730

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

Analysis of NIH Program Activities

Project Description Sheet

. National Institute of Mental Health
INSTITUTE

2. Clinical Investigations
LABORATORY OR BRANCH

. Adult Psychiatric Service
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 145(C)
SERIAL NO.

. Problems in Conducting Research in a Clinical Setting
PROJECT TITLE

7. Stewart E. Perry
PRINCIPAL INVESTIGATOR(S)

3. Dr. Lyman C. Wynne and Charlotte G. Schwartz
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Objectives: To describe how the role of clinician is transformed by the requirements of the role of researcher and similarly how the role of patient is transformed by the requirements of the role of research subject--with the aim of sorting out the interpersonal and social difficulties that are involved in carrying on clinical research.

Methods Employed: Individual interviews of staff and patients and participant observation of staff-staff, staff-patient, and patient-patient interaction.

Patient Material: (1954 calendar year)

		No.	Average Stay Days
Admissions:	Adult males	1	270
	Adult females	2	270

No patients admitted specifically for this project. Patients admitted for other projects are studied.

Major Findings: Major shifts in action patterns and in self-perceptions are required when the role-players sense that a conflict exists between the demands of the clinical and of the research activities.

Significance to Mental Health Research: With some of the problems isolated, it will be easier to prepare the incipient clinical researcher for the kinds of decisions he will be called upon to make insofar as his care of patients is involved in his research upon them. Presumably, also, knowledge in this area will permit the administrative head of a clinical research program to assign and delimit functions of his staff with more awareness of the difficulties which the staff are likely to run into.

Proposed Course of Project: To continue in much the same manner in the collection of data for the next six or so months with the aim of formulating more specifically some hypotheses in the succeeding six months, which may be susceptible to more rigorous test than that permitted by impressionistic observation.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

NIMH
10. 145(C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$6,630	2	1	3	2/3	1/3	1	10
FY 1956	$6,630	2	1	3	2/3	1/3	1	10

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10)

None.

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Clinical Investigations
LABORATORY OR BRANCH

3. Adult Psychiatric Service
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 146(C)
SERIAL NO.

6. "Style" of perception and communication in character structure, with especial reference to hysterical processes.
PROJECT TITLE

7. Lyman Wynne, M.D, and Irving Ryckoff, M.D.
PRINCIPAL INVESTIGATOR(S)

8. None
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Objectives: To delineate the characteristics of particular modes or "styles" of perception and communication and to study their function in personality dynamics.

Methods employed: Three main approaches have been used in this project: (a) specification and elaboration of a theory of character structure which began with the examination of psychotherapeutic material of patients having hysterical character disorders. (b) scrutiny and formulation of particular aspects of the development and functions of style, such as the uses of laughter and particular rhythmic kinds of stress as modes of communication. (c) studies of the mode of perception of hysterical patients in reading and hearing materials having different kinds of content and style. A tape recording of non-objective sounds is also being used in this connection.

Patient material: Two in-patients who show hysterical features in their personality functioning.

Major findings: We have delineated an aspect of character structure which helps determine the selective qualities of both perception and communication and which constitutes a "style" peculiar to hysterical character processes. This "style" includes the non-evaluative, non-critical aspects of ego functioning, especially perceptual and communicative functions that deal in terms of generalized feelings, manner, estheticism, and force, rather than in terms of the content of what is perceived or communicated. We have found that these patients have a clear ego defect in their capacity to perceive, evaluate, and communicate content, especially the content of their interpersonal

relationships. This defect is overlooked by themselves and others since it is filled in with a particular kind of romanticism and pseudo-imagination. Hence, other ego resources are not brought to bear upon problems to make a genuine correction, leaving the patients with obscured, mounting anxiety and can assume psychotic proportions.

Significance to MENTAL HEALTH Research: This study contributes to understanding of the pathogenesis and characteristics of a common form of mental illness.

Proposed course of project: Further elaboration, specification and testing of the hypotheses developed is planned and additional patients will be brought into the study.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 146(C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$7,413	2	1	3	2/3	1/3	1	
FY 1956	$7,413	2	1	3	2/3	1/3	1	

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Clinical Investigations
LABORATORY OR BRANCH

3. Adult Psychiatric Service
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 147(C)
SERIAL NO.

6. The Use of Linguisitics in the Study of Tape Recorded Psychiatric Interviews
PROJECT TITLE

7. Robert E. Pittenger, M. D.
PRINCIPAL INVESTIGATOR(S)

8. Henry Lee Smith, Jr. and Edward T. Hall (FSI - State Dept.)
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Objectives: To explore the usefulness of the anthropological techniques of linguistics in analysis of the communications of psychiatric interviews.

Methods employed: Tape recorded interviews are the basis of available material for study. The three investigators listen together to the recordings repeatedly, observing overall patterns and small tone and quality changes and discussing them from the points of view of psychiatry and linguistics.

Major findings: With the use of linguistics it is possible to describe much more accurately elements of speech which until now have been obscure and understood "intuitively" or as a result of experience with similar material, but not because the elements could be described and agreed upon by various investigators. Elements of the communication of the patients studied appeared to vary significantly from normal communication.

Significance to MENTAL HEALTH Research: The basis of our classification and theoretical constructions about personality and its pathology is on the basis of communications. Any tool which can allow us to describe more accurately the elements of these communications is an advance in the basic tools in the field of mental health study.

The ability to describe communication more accurately is a major contribution in teaching in psychiatry and related fields where interviews are the basis of the work and understanding.

Proposed course of project: The next calendar year will be in efforts to further explore communications of patients and doctors. Specifically defined areas of research will be sought and if possible research planning initiated on these areas.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

NIMH
10. 147(C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$8,196	1	1	2	1/3	1/3	2/3	
FY 1956	$8,196	1	1	2	1/3	1/3	2/3	

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 1

Language Branch, Foreign Service Institute, State Department (Personnel)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

None

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Clinical Investigations
LABORATORY OR BRANCH

3. Adult Psychiatric Service
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 148(C)
SERIAL NO.

6. Family relationships in schizophrenia
PROJECT TITLE

7. Juliana Day, M.D., Irving Ryckoff, M.D., and Lyman Wynne, M.D.
PRINCIPAL INVESTIGATOR(S)

8. Robert Pittenger, M.D., Mrs. Thais Fisher, Nursing Personnel on 3 West
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION

Objectives: (a) Development of a method for analyzing interview material and observations from the viewpoint of relationships within the family group. (b) Specification and testing of hypotheses regarding the system of relationships within the families of schizophrenic patients.

Methods employed: (1) Data collection. Data is collected by psychiatric interviews with the patient, parents and other significant relatives. This includes intensive psychotherapy with the patient, and interviews with parents which can eventuate in psychotherapy. Collateral data is collected from social worker, administrator, and nursing personnel regarding interaction of the parents with the staff and with the patient. Data will also be collected regarding family interaction by means of regular meetings of the patient and parents with a participant observer.

(2) Analysis of Data. Methods of analyzing the data include the use of the psychoanalytic viewpoint to examine the dynamics of the individual therapeutic relationships, and role theory as basis for analyzing the family system of interrelationships.

Patient Material: Patient material consists of young, recently ill schizophrenics with both parents available for outpatient interviews.

	1954	Current	Planned for 1955
Number of Patients (Hospitalized)	3	2	4
Number of Parents (Out-Patients)	5	3	7

Major findings: A major finding during the past year has been the development of the method of role analyses for the examination of family relationships. This method reduces psychotherapeutic data to manageable dimensions and provides a basis for the formulation and testing of hypotheses. Examples of such hypotheses are: (1) The mother-patient relationship is firmly bound by mutual dependence, where each is aware of the other's dependence on the other. Each has a lack of awareness of his own active participation in role relationships so that he appears to exist in a state of being rather than in a state of interaction. (2) A child's personality is largely constituted of the reciprocals of roles taken with him by his parents and significant others. An impoverished and rigid set of role alternatives in the relationships of the parents with the child, as in schizophrenia, leads to specific, reciprocal ego defects in the personality of the child.

Significance to MENTAL HEALTH Research: A major problem in mental health and one of the major interests of NIMH research, is schizophrenia. In the study of the pathogenesis of schizophrenia there is an increasing recognition of the need for understanding of the part played by family relationships. The significance of this project lies in the development of a method for analyzing such relationships out of which can develop useful hypotheses. This method may also prove to be a useful tool in the analysis of clinical psychiatric data from other sources.

Proposed course of project: Further specification and elaboration of method of hypotheses as suggested above.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-148(C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$15,553	3	1	4	1	1/3	1-1/3	590*
FY 1956	$15,553	3	1	4	1	1/3	1-1/3	960

* Includes 15 hours of an outpatient. Hours most parents seen not tabulated since not registered as outpatients.

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Clinical Investigations
LABORATORY OR BRANCH

3. Adult Psychiatric Service
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 149(C)
SERIAL NO.

6. A Study of Changes in Interpersonal Relations in the Pre-Onset Period of Abruptly Beginning Schizophrenic Psychosis
PROJECT TITLE

7. Dr. Robert H. Dysinger
PRINCIPAL INVESTIGATOR(S)

8. None
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Objectives: The purpose of this study is to explore the pre-onset history of abruptly beginning schizophrenic psychoses for the purpose of testing a series of hypotheses concerning the occurrence of certain kinds of interpersonal events in close relation to the onset of psychosis. These hypotheses derive from a theory of onset which they test in a crucial way.

Methods employed: (1) Direct examination of historical material from sound recordings for a few patients (2) Examination of clinical records for another group of patients and (3) questionnaire inquiry of psychotherapists of a third group of patients.

Patient material: Will consist of a small number of in-patients (two at present) with an additional one or two during the year.

Major findings: None. Preliminary exploration and preparatory work has been accomplished to date.

Significance to MENTAL HEALTH Research: This project is in relation to the general problem of understanding what events and circumstances are in relation to a change in the degree of psychosis in a person from one time to another.

Proposed course of project: This project is expected to require about a year for completion.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH 149(C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$8,546	1	1	2	1/3	1/3	2/3	
FY 1956	$8,546	1	1	2	1/3	1/3	2/3	

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Clinical Investigations
LABORATORY OR BRANCH

3. Adult Psychiatric Service
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 150(C)
SERIAL NO.

6. Development of Linguistic Methods for the Study of the Psychotherapeutic Process
PROJECT TITLE

7. Drs. Lyman Wynne and Allen Dittman
PRINCIPAL INVESTIGATOR(S)

8. Prof. George Trager (Consultant)
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Objectives: (1) To develop proficiency in certain linguistic techniques, particularly the linguistic description of intonation and vocalizations. (2) To explore and test the limits of reliability of these techniques in discriminating patterns of language behavior and to develop the techniques further, where appropriate, with respect to their applicability to psychotherapeutic material.

Methods Employed: For three months the investigators have been meeting regularly for discussion and practice of the linguistic techniques outlined by Trager and Smith. Tapes and their transcriptions from various sources have served as data, variety being sought at this stage of the study to further the range of vocalizations to be analyzed, such that points in need of more complete description by the techniques may be delineated. Very recently the consulting services of Professor George L. Trager have been obtained and a thorough training program begun for the learning of the methods. Systematic check on interjudge agreement will be made and used as a criterion for learning and further development of the techniques.

Patient Material: Tape recordings of psychiatric patients seen for other purposes are used in this study.

Major Findings: Preliminary checks on interjudge agreement indicate that acuity of the listening powers of the judges and their proficiency in coding what is heard is subject to quite rapid learning. The work done thus far also suggests that certain aspects of the linguistic methods as now described in the literature can benefit from further clarification.

Major Findings: Four wards are currently in operation; two of which are devoted to studies of schisophrenia; one to studies of psychosomatic illness and one to studies of behavior disorders in children. The skills of psychiatry, psychology, nursing, social work, sociology, biochemistry, physiology, etc., are all being focused in varying degrees and with varying emphases on research in these areas.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-150(C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$4,015	2	1	3	1/3	1/3	2/3	
FY 1956	$4,015	2	1	3	1/3	1/3	2/3	

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Clinical Investigations
LABORATORY OR BRANCH

3. Adult Psychiatric Service
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 151(C)
SERIAL NO.

. Effect of Psychoses Inducing Drugs on Chronic Schizophrenic Patients
PROJECT TITLE

7. Louis S. Cholden, M. D.
PRINCIPAL INVESTIGATOR(S)

8. Morris Parloff, Ph.D., Charlotte Schwartz, M.S.
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Objectives: To study the effect of lysergic acid diethylamide (LSD 25) and mescaline in changing the ability of chronic schizophrenic patients to form interpersonal relationships that can be utilized psychotherapeutically.

Methods employed: Observational rating scales, interviews with nursing personnel, interviews with patients, and standardized movie interviews.

Patient material: Six chronic regressed schizophrenic female patients from St. Elizabeth's Hospital.

Major findings: Preliminary evidence indicates that some of the chronic schizophrenic patients regress to their former state on first administration of the drugs. However, the data is not ready for evaluation yet.

Significance to MENTAL HEALTH Research: It would be important to know what effect a new delusional stress system has on the already psychotic ego. Also if the disorganization which occurs can be utilized therapeutically.

Proposed course of project: This project is now in the first stages of drug administration after baseline studies of the patient's behavior have been made.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

NIMH
10. 151(C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$10,718	2	1	3	2/3	1/3	1	2190
FY 1956	$10,718	2	1	3	2/3	1/3	1	2190

12. BUDGET ACTIVITY:

RESEARCH /X/ ADMINISTRATION /_/

REVIEW & APPROVAL /_/ TECHNICAL ASSISTANCE /_/

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Clinical Investigations
LABORATORY OR BRANCH

3. Adult Psychiatric Service
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 152(C)
SERIAL NO.

6. Pilot Study on Lysergic Acid Diethylamide (LSD 25) Administration in Chronic Schizophrenic Patients (Tolerance Studies)
PROJECT TITLE

7. Louis Cholden, M. D.
PRINCIPAL INVESTIGATOR(S)

8. Dr. Charles Savage, Albert Kurland
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Objectives: To study the reactions of chronic schizophrenic patients to lysergic acid diethylamide (LSD 25).

Methods employed: Observational rating scales, nurses notes, and personal observation of patients with LSD and placebo administration.

Patient material: Four chronic schizophrenic patients on the Spring Grove Hospital ward, Catonsville, Maryland.

Major findings: The patients all reacted in different ways to LSD administration. The peculiar phenomenon of tolerance after one dose of the drug was found here. This has never been reported in the literature.

Significance to MENTAL HEALTH Research: Some authors state that chronic schizophrenics do not react to LSD. This was found untrue.

The phenomenon of Tolerance which was found here has considerable meaning both theoretically and practically for experimental psychiatry.

Proposed course of project: Fifteen more patients are being studied in a similar fashion at the present time.

R.P.C. - 2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-152(C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENT DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$2,902	1	0	1	1/3	0	1/3	
FY 1956	$2,902	1	0	1	1/3	0	1/3	

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 or 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S) (ITEM 10

Spring Grove State Hospital, Catonsville, Maryland

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO(S) IF WITHIN NIH)

R.P.C. - 1
December 1954

Analysis of NIH Program Activities

Project Description Sheet

1. National Institute of Mental Health
INSTITUTE

2. Clinical Investigations
LABORATORY OR BRANCH

3. Office of the Clinical Director
SECTION

4. _____
LOCATION (IF OTHER THAN BETHESDA)

5. 153(C)
SERIAL NO.

6. Administration and Research Planning of Clinical Investigations Program
PROJECT TITLE

7. Drs. Robert A. Cohen and William C. Jenkins, Jr.
PRINCIPAL INVESTIGATOR(S)

8. Research Planning Staff (Laboratory Chiefs, et al.)
OTHER INVESTIGATORS

9. PROJECT DESCRIPTION:

Objectives: Operation of a well-balanced, integrated program of treatment and research in mental disease and emotional disturbance in adults and children with both out-patients and patients hospitalized in the Clinical Center; and development of a theory of personality.

Methods employed: Efforts have been concentrated on building and maintaining a high caliber and highly motivated professional staff, well-balanced between clinical and research skills, on the theory that psychiatric research can be no better than the treatment on which it is based. Considerable time and energy has been devoted to the maintenance of effective liaison with the many departments of the Clinical Center, e.g., nursing, social work, executive office, professional services, occupational therapy, etc. A major disturbance in any one of these areas can be extremely disrupting and even fatal to some of the research goals that are being pursued. Frequent and regular conferences with professional staff are held, individually and in groups, for discussions of clinical problems, research proposals, preliminary findings or progress reports of current research, etc. In addition, a program of weekly seminars brings to the staff guest speakers and consultants with new or different approaches to psychiatric and psychological research. The dividends to be derived from maintaining good communication with leaders in the field of psychiatry, psychology and related sciences through personal contact, correspondence, attendance at and participation in meetings and conferences of various local and national professional groups are recognized and included in the program planning.

Major Findings: Four wards are currently in operation; two of which are devoted to studies of schisophrenia; one to studies of psychosomatic illness and one to studies of behavior disorders in children. The skills of psychiatry, psychology, nursing, social work, sociology, biochemistry, physiology, etc., are all being focused in varying degrees and with varying emphases on research in these areas.

R.P.C. -2
December 1954

Analysis of NIH Program Activities

Budget Data Sheet

10. NIMH-153(C)
SERIAL NO.

11. BUDGET DATA:

	ESTIMATED EXPENDITURES	BUDGETED POSITIONS			MAN YEARS			PATIENTS DAYS
		PROF	OTHER	TOTAL	PROF	OTHER	TOTAL	
FY 1955	$37,020	2	3	5	2	3	5	
FY 1956	$64,720	5	2	7	4	2	6	

12. BUDGET ACTIVITY:

RESEARCH [X] ADMINISTRATION [ ]

REVIEW & APPROVAL [ ] TECHNICAL ASSISTANCE [ ]

13. IDENTIFY ANY COOPERATING UNITS OF THE PUBLIC HEALTH SERVICE, OR OTHER ORGANIZATIONS, PROVIDING FUNDS, FACILITIES, OR PERSONNEL FOR THIS PROJECT IN EITHER 1955 OR 1956: IF COOPERATING UNIT IS WITHIN NIH INDICATE SERIAL NO(S)(ITEM)

14. IF THIS PROJECT RESEMBLES, COMPLEMENTS, OR PARALLELS RESEARCH DONE ELSEWHERE IN THE PUBLIC HEALTH SERVICE (WITHOUT INTERCHANGE OF PERSONNEL, FACILITIES OR FUNDS), IDENTIFY SUCH RESEARCH: (BY SERIAL NO.(S) IF WITHIN NIH)

DATE DUE
