

R & W Elects Officers, Considers '60 Plans, Presents Awards

Helen M. Anderson, Assistant Administrative Officer, NIDR, was elected President of the NIH Recreation and Welfare Association at its annual meeting, December 2, in Wilson Hall. Miss Anderson, who assumes her duties in January, succeeds Dr. John A. Scigliano, who served as R&W president during 1959.

Other officers elected were Dr. Richard H. Williams, NIMH, 1st Vice President; Woodrow W. Stevenson, OAM, 2nd Vice President; Clare W. White, OAM, Treasurer; Ernestine Taylor, NHI, Recording Secretary; and Evelyn Trowbridge, NHI, Corresponding Secretary.

Submits Recommendations

President Scigliano's annual report for 1959 presented recommendations for the 1960 R&W Board and Council, based on findings of some of the 1959 ad hoc committees. These recommendations included revision of the by-laws, amendments to permit employment of a full-time business manager, and continuation of the committees investigating the possibilities of a scholarship program, an R&W citizenship award, and a recreation building.

The treasurer reported expenditures of \$11,591.63 for welfare activities and \$7,370.44 for recreational activities.

Membership passed the 4000 mark, and there was a total of
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With the help of Santa Claus, Gray Ladies Mae Purcell (left) and Betty Smith select and wrap toys to be given to small patients at Christmas parties this week. Impersonating Santa here is Gary Schrag, a normal control patient.

NIH Observes Christmas Season

The annual NIH Christmas party on Wednesday, December 23, will feature the NIH Chorus presentation of "The Pool of Bethesda," an anthem written especially for NIH.

Incorporating Bible verses 2, 3, and 4 from the 5th chapter of the Book of St. John, the anthem was composed by Dr. George Thaddeus Jones, associate professor of music at the Catholic University of America. These verses, which describe the healing powers of the biblical Pool of Bethesda, are also beautifully displayed in an illuminated scroll executed by Enid Perkins, a Washington, D. C. artist. The scroll is on view in the CC lobby.

The Christmas party, to which all NIH employees are invited, will

take place from 11:30 a.m. to 12:30 p.m. in the CC auditorium. The chorus will lead in the singing of Christmas carols, and Dr. Shannon will extend Christmas greetings. The new anthem will be sung at noon.

"The Pool of Bethesda" was given its initial performance on December 19, when the NIH Chorus entertained patients in the 14th floor assembly hall. The anthem was sung again by the chorus on December 21 in an evening choral

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Flemming Names Two NHI Officials To DHEW Posts

Two of the top men in NHI, Dr. James Watt, Director, and Robert H. Grant, Executive Officer, have been appointed by DHEW Secretary Arthur S. Flemming to positions in DHEW.

Dr. Watt will fill the newly created post of Special Assistant to the Secretary for Aging. In this capacity he will act as advisor to the Secretary and the Under Secretary, and will be directly responsible for the conduct of the 1961 White House Conference on Aging and for general direction of the Department's Special Staff on Aging.

Mr. Grant has been made Director of the DHEW Special Staff



Robert H. Grant Dr. James Watt

on Aging and Staff Director of the 1961 White House Conference on Aging.

Dr. Watt will continue in his position as Director of NHI, and will serve in the new assignment on a half-time basis, beginning January 1, 1960, until approximately May 1, 1961. During his absence, Dr. Luther L. Terry, Assistant Director, will be Acting Director of the Institute.

Mr. Grant will occupy his new positions on a full-time basis until May 1961. Until then, Philip Janus, now on the staff of the Executive Officer, OD, will be Acting Executive Officer of NHI. He will be assisted by John B. Reed of the Financial Management Branch, OAM.

In announcing the two appointments, Secretary Flemming said

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FINAL UGF REPORT SHOWS NIH EXCEEDS GOAL BY \$1,491

Final reports on the UGF campaign revealed that DHEW, NIH, and 10 of the 13 components of NIH reached or exceeded 100 percent of their goals.

DHEW as a whole raised more than \$165,000, while NIH contributed \$1,491 more than its \$60,469 quota.

DHEW Secretary Arthur S. Flemming sent his congratulations

to all Department employees, and added, "Now that we have proved to ourselves and others that we can reach our goal, let us regard this as the foundation stone of a tradition that will mean we can and will meet our goal each year hereafter."

A plaque was presented to NIH at the UGF luncheon on November 22. Other plaques were given by

Dr. John D. Porterfield, PHS Deputy Surgeon General, to the following representatives of NIH units that reached their goals: Harold W. Curran, DRG; Anne Udoff, DGMS; George Brust, DBS; Dr. Robert Farrier, CC; Robert H. Grant, NHI; James E. Moynihan, NIAID; Clair E. Lacey, NIAMD; Jeni Arliss, NINDB; Charles E. Mills, NIMH; and John E. Fitzgerald, NIDR.

the Record

Published bi-weekly at Bethesda, Md., by the Scientific Reports Branch, Division of Research Services, for the information of employees of the National Institutes of Health, principal research center of the Public Health Service, U. S. Department of Health, Education, and Welfare.

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CHRISTMAS

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concert in the CC auditorium.

Christmas festivities for the CC patients started on December 13, when students from Catholic University presented a Christmas show. Carol groups from various local churches, the YWCA, and the Y-Teens visited patients throughout the past week.

Area Groups Participate

All the patients were entertained on December 17 at a party given by the Scottish Rite Masons, and on December 20 at a concert given by the Montgomery County A Cappella Choir.

The CC Director's Office, the chaplains, and Santa Claus brought NIH greetings to patients at a party on December 21. Following this, The Woodrow Wilson High School presented a musical program.

The Institutes are giving their parties for the patients on December 22. Special refreshments will be prepared by the CC Nutrition Department to meet the dietary requirements of individual patients.

Gifts Presented

At the parties held for patients by the Institutes, gifts will be presented from NIH. Many of these gifts will come from the staff members of CC offices, who have arranged to do this instead of exchanging with each other at their own office parties. Gifts for patients with no family ties are reserved for presentation on Christmas Day, and special efforts are made to make these useful gifts.

A Protestant Christmas Eve service and Holy Communion will be held at 6:30 p.m. in the chapel. At 11:45 that evening a Catholic carol service will be followed by Midnight Mass.

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that he created the post of Special Assistant for Aging as a further recognition of the increased importance of aging as a concern of the Department, and the importance of the specific study of gerontology.

"Dr. Watt was selected for this role because of his familiarity as an administrator with the increasing research effort in the field of gerontology, including the significant pioneer work in this area done by the National Heart Institute," Secretary Flemming said, "and Mr. Grant brings to his new duties a background of distinguished administrative work in government."

Served PHS Abroad

Dr. Watt has spent the major part of his professional life in the conduct and administration of medical research and public health activities. He received a degree of Doctor of Medicine from the Johns Hopkins School of Medicine, and a Doctor of Public Health degree from the Johns Hopkins School of Hygiene and Public Health. He has served in various parts of the world as a career medical officer with the Public Health Service since 1938, and became Director of the Heart Institute in 1952.

Experienced Administrator

Mr. Grant, a native of Washington, D. C., attended the University of Maryland and received an LL.B. degree at Catholic University. Early in his career he was associated with the Department of the Interior, the U. S. Civil Service Commission, and the Veterans Administration. In 1950 he joined the NHI staff as Administrative Officer for Research, and became Executive Officer in 1955.

Society Elects Coatney As Vice President

Dr. G. Robert Coatney, Chief, Laboratory of Parasite Chemotherapy, NIAID, has been elected vice president of the American Society of Tropical Medicine and Hygiene for 1960.

President of the Society this year is Dr. Willard H. Wright, and president-elect is Dr. W. W. Frye.

Dr. Wright was former Chief of the Laboratory of Tropical Diseases, NIAID. He retired in June 1958 from the PHS Commissioned Corps, and is now with the National Research Council.

Dr. Frye serves as a member of the National Advisory Allergy and Infectious Diseases Council. He is dean of Louisiana State University Medical School and vice-president of the University.

Dr. Conner Will Head Dental Study Section

Dr. Mark H. Conner, DRG, has recently been detailed to duty as Executive Secretary of the Dental Study Section. This appointment relieves Dr. Robert T. Hill of double duties as Executive Secretary of both the Dental and Endocrinology Study Sections. Dr. Hill will remain in the Executive Secretary position in the Endocrinology Study Section.

Dr. Conner has been a public health research analyst with DRG since March 1959. He served as a special assistant to the Chief of the Research Grants Review Branch. Since 1957 he has been a part-time lecturer in the biology department of American University in Washington, D. C.

Bloodmobile at NIH

The Red Cross Bloodmobile unit will be at NIH on Wednesday, December 30, to receive donations from 9 a.m. to 1 p.m. in Wilson Hall. Those interested in contributing blood may obtain further information by calling ext. 707, 708, or 709.

R&W ELECTS

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21 different types of employee activities taking place throughout the year.

Winners of the recent Second Annual Art Exhibit, sponsored by R&W, were given prizes. Baseball trophies were presented to Britton H. Smith, NCI, on behalf of the NIH team, champions in the Montgomery County League; and to Donald W. Shaw, NIMH, on behalf of the NIMH team, which won in the Intramural League.

For a Fire-Free Xmas Read 'Em & Heed 'Em!

For a Christmas free from the tragedy of fires, NIH's Fire Marshal, Kenneth W. Gettings, offers the following suggestions:

Buy a fresh Christmas tree.

- Test to see that needles do not fall.
- Make sure that resin is oozing from the stump.

Keep the tree moist.

- Saw off the bottom of the trunk at an angle.
- Keep the tree standing in water or wet sand.
- Discard tree by January 3.

Eliminate hazards.

- Discard defective wiring.
- Use only UL (Underwriter's Laboratory) equipment.
- Place tree away from stairs, exits, fireplace, or other sources of heat, flame, or draft.
- Turn tree lights off when the room is not occupied.
- Use flameproof decorations.
- Discard gift wrappings promptly.

198 Grants Approved

At the November meeting of the National Advisory Health Council, 198 applications for research grants in the basic biomedical sciences and environmental health were approved.

Three hundred and forty-five requests were considered. Of the 198 approved, 155 were new applications, 19 were for continuation support, and 24 were supplements to existing projects.

USDA Courses Planned

Registration for the NIH-Department of Agriculture Graduate School will be held February 8-12 in the Clinical Center, Room 2-B-50, between 11:30 a.m. and 4:30 p.m.

A registrar will be available for consultation on January 25-29, and February 1-5, between 2-4 p.m.

Catalogs may be obtained now from Carol Long in Room 2-B-52, CC (ext. 2427).

Grants Data Restated

Due to an error in the last issue of the RECORD, a misleading impression was given of some research grants information. The correct version follows:

In fiscal year 1959 NIH research grants were made to 874 institutions in the U. S. and foreign countries. Four hundred and twenty-six of these institutions had only one active NIH grant.

Science Section

This two-page section is devoted chiefly to summaries of research findings that have been reported by scientists of the National Institutes of Health. This section is prepared by the Office of Research Information, NIH, and the Information Offices of the Institutes and Divisions.

BASIC RESEARCH IMPORTANT TO ATTACK ON SCHIZOPHRENIA

The problem of etiology in schizophrenia is recognizably not a simple one. The human being—an intricate biological and psychological unit, interacting in societies with other human beings—is the most complex of systems imaginable.

In the past, the most productive biological scientists have made most progress by working with simple systems—single animal cells, bacteria, viruses, and then with part-processes in higher organisms. The testing of hypotheses in biological investigation, when they extend to higher animals systems, requires rigorous methodology and runs the risk of an oversimplified analogy with simpler biological processes. It is these kinds of difficulties that research investigators working in the biology and biochemistry of mental illness confront today.

Many studies in basic research are highly important to the developing attack on schizophrenia. Such studies include research on the mechanisms of neural organization and function in the central nervous system, and its response to drugs, electrical stimulation, sensory deprivation, and other

variables; work on the mechanism of genetic transmission and its derangement; analytic studies of behavior processes in lower organisms; neurophysiological mechanisms of conditioning; studies of the complexities of successful (normal) socialization and family life, and how destructive tendencies are contained therein; and analyses of existing socio-cultural institutions in their impact on human development and change.

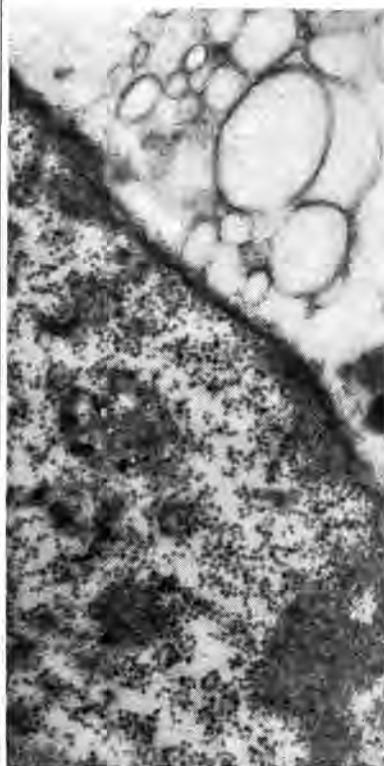
An example of basic research having long-run implications for schizophrenia is the direct exploration, through implanted electrodes, of brain areas whose stimulation duplicates the rewards and punishments usually found in the environment. At the National Institute of Mental Health, an implantation technique has been developed which permits simultaneous exploration of 156 separate points in the living animal brain.

Studies with volunteer human subjects are exploring the effects of sustained and total deprivation of all sensory stimulation from the unrealistic anxieties, perceptual-motor disturbances, and even hallucinations—all characteristics of the behavior of chronically ill patients.

Polyoma Particles Seen In Nucleus of Cells In Tissue Culture

Scientists of National Cancer Institute's Laboratory of Pathology have reported in a recent issue of the *Journal of the National Cancer Institute* on their electron microscope studies of the polyoma virus grown in cell cultures of a mouse lymphoma. Spherical particles were found in the nucleus, cytoplasm, and on the surface of the cell in infected cultures.

Newborn mice inoculated with these cultures developed the sa-



Portion of the nucleus of a tissue culture cell containing many polyoma particles. Nuclear membrane and cytoplasm are at the upper right. X 20,000.

lary-gland tumors and multiple tumors of other types characteristically associated with the polyoma virus. Control cultures did not contain the particles, nor did mice receiving control cultures develop tumors.

The average diameter of the particles was 27 to 35 mu. This size is comparable with that (40 mu) obtained in studies of the polyoma virus isolated from a different source by Dr. Herbert Kahler, Laboratory of Physiology, and his associates (JNCI, March 1959).

This more recent work is reported by Dr. William G. Banfield, Dr. Clyde J. Dawe, and Mrs. Darlene C. Brindley.

Steroid Hormones Block Key Process in Cell

The role of the steroid hormones in the regulation of cell metabolism, although of great biological importance, is still not well understood. Basic research studies by scientists at the National Institute of Arthritis and Metabolic Diseases have now shown that the steroids are potent inhibitors of one of the key metabolic reactions taking place within the cell—the oxidation of DPNH, or diphosphopyridine nucleotide.

This finding has been reported in the *Proceedings of the National Academy of Sciences* by Dr. K. Lemone Yielding, Arthritis and Rheumatism Branch, and Dr. Gordon M. Tomkins, Laboratory of Biochemistry and Metabolism.

DPNH is involved at a critical point in cell metabolism. In its oxidized form, DPN, it is a co-factor required by many enzymes for the oxidation of food within the cell. During the oxidation, DPN is reduced to DPNH and is then normally re-oxidized to DPN, so that it may again function as a co-factor.

Another Enzyme System

This subsequent oxidation of DPNH to DPN, which is accomplished by another enzyme system in the cell, is the reaction the NIAMD scientists discovered to be inhibited by the steroid hormones.

The steroids that were found to inhibit markedly DPNH oxidation include cortisone, dihydrocortisone, corticosterone, deoxycorticosterone, testosterone, dihydrotestosterone, progesterone, estradiol and diethylstilbestrol. Several other steroids were tested but had no effect on DPNH oxidation (tetrahydrocortisone, cholesterol, ergosterol, digitoxin and digoxin).

The active steroids were apparently catalytic, since small amounts inhibited the oxidation of much larger amounts of DPNH. Such a catalytic nature is clearly desirable in substances which are biologically active in low concentrations.

The biological significance of the finding of the NIAMD investigators has yet to be fully evaluated.

"From the physiological standpoint," Drs. Yielding and Tomkins reported, "it is somewhat disturbing that all the organ tissues tested (muscle, liver, kidney, heart, etc) seemed to be almost equally responsive chemically to such hormones as diethylstilbestrol or progesterone. It is, therefore, difficult to explain the varying tissue-specific physiological responses of these organs to different steroids. It may be, however, that permeability or other factors impose a greater specificity when intact cells are exposed to the hormones."

Confirm Suitability of Milk As Maintenance Medium

The development of a serum-free medium containing skim milk (Baron and Low, *Science*, 1958) which effectively maintains a wide variety of cell cultures led Division of Biologics Standards scientists to a study of viral sensitivity of various cell cultures in this medium.

Comparative titrations of 22 different virus strains, performed by Dr. Samuel Baron and co-workers, showed that the infectivity titers of ECHO, Coxsackie, poliomyelitis, influenza, herpes, measles, and vaccinia virus in the presence of skim milk medium were equal to or greater than those obtained when established maintenance medium was used.

Strains of adenovirus maintained

in skim milk showed a lower infectivity for the cells than in established maintenance media. Experiments to determine whether the skim milk acts directly to repress adenovirus multiplication or whether it lacks the cell-mediated enhancing factor of other media indicate that its inhibitory action was probably an effect on the tissue culture cells rather than an antiviral effect. Similar cell-mediated effects have been observed by other investigators.

Thus, the overall results of the study confirm the suitability of skim milk as a maintenance medium. Full details of the study by Alice Gochenour and Dr. Samuel Baron appeared in a recent issue of *Proc. Soc. Experimental Biology and Medicine*.

BEGINNINGS OF FEDERAL ROLE IN MEDICAL RESEARCH TRACED

Excerpt from an address by Dr. James A. Shannon at the meeting of the Section on Historical and Cultural Medicine at the New York Academy of Medicine, November 18, 1959.

It is in the post-Civil War scene that the beginnings of a broad national health and medical research role for the Federal Government appear. This was a period of great interest in public health in the States and among physicians and public officials. The first modern State Board of Health was set up in Massachusetts in 1869. The American Public Health Association was organized in 1872.

In 1879 a bill passed the Congress, creating a National Board of Health. I wish to dwell on the establishment of this National Board of Health for a moment because the activities which it undertook constitute the first organized, comprehensive national medical research efforts of the Federal Government.

This Board was set up to deal with a practical public health problem. In 1878 there had been a severe yellow fever epidemic, and it became clear that existing means for dealing with communicable diseases of this nature were inadequate. The Board was composed of seven members appointed by the President. It included representatives of the Army, Navy, Marine Hospital Service and the Justice Department. Significantly, one of its functions was to "obtain information on all matters of public health." The original bill also provided authority—deleted before enactment—for grants-in-aid to State Boards of Health.

The record of this Board is remarkable. Among the able men appointed to it was John Shaw Billings. Billings, an Army Medical Officer, was a distinguished intellectual and administrator—a rare combination. He had carried out the study which resulted in the reorganization of the Marine Hospital Service in 1870 and was to figure prominently in the national medical scene for the remainder of the century. Billings became Vice-Chairman of this National Board and its dominant and guiding member.

The Board initiated a research program, largely under the design and direction of Billings, which included the following activities:

1. The dispatch of a yellow fever investigation commission to Cuba.
2. The revision of a standard nomenclature of disease.
3. The development of a vital statistics program in cooperation with the Tenth Census of 1880.
4. The conduct of field sanitary surveys.

Finally, the Board provided financial aid to scientists in universities through grants for the conduct of research on problems of interest to the Board. This was, I believe, the first use of the Federal grant-in-aid device for the support of research in non-Federal institutions. It was the beginning of the project grant system.

The Board, unfortunately, was short-lived. Its support of research, involving the expenditure of \$30,000 in all, was considered extravagant by Congress. In administering national quarantine functions, the Board incurred the opposition of state agencies, the private shipping interests and, interestingly enough, the Marine Hospital Service. In 1882 its appropriations were transferred to the Marine Hospital. The Service carried on the Board's quarantine functions, but did not continue its general program of public health research or research grants.

R. D. Leigh, in his book *Federal Health Administration*, has this to say of the demise of the National Board's research program:

"... one cannot read the plans and accomplishments of the National Board of Health during its four years of activity in the field of research, and then scan the annual reports of the Marine Hospital Service for the next twenty years, without being convinced that it took about fifteen years for the Service to catch up with the quality of scientific leadership in statistics, research and sanitation at the command of its predecessor."

It was not until 1912 that the broad public health and medical research function exercised by the National Board was finally authorized for the Federal Government. The concept of Federal grants-in-aid for support of medical research in universities and research institutions, although revived briefly during and immediately after World War I, was not incorporated into law until the National Cancer Act of 1937.

This sequence of events indicates clearly how the evolution of Federal activities are in fact limited by fundamental factors outside the control of bureaucrats. Neither the general concepts of the role of the Federal Government, the state of science itself, nor the structure and scientific capacities of universities were developed in the 1880's to the point where a strong Federal effort in support of the medical sciences was comprehensible or feasible.

Herpes-Like Disease Probably Non-Viral

Herpetic lesions occur in two principal forms—herpes labialis appearing on the vermillion border of the lip, and acute herpetic gingivostomatitis appearing on the intra-oral mucosal and gingival tissues. Recent studies by National Institute of Dental Research investigators, in collaboration with other NIH scientists, have provided substantiating evidence that a third disease entity (termed aphthous stomatitis) which occurs intra-orally and closely resembles the herpetic lesion, is probably of nonviral origin.

At a recent Combined Clinical Staff Meeting, representatives of



Dr. I. I. Ship, NIDR, examines oral lesion with direct view microscope.

NIDR, National Institute of Arthritis and Metabolic Diseases, and Division of Biologics Standards reported on findings differentiating the above-mentioned lesions. Viral studies were outlined by Drs. S. Baron, DBS, J. P. Utz of National Institute of Allergy and Infectious Diseases, and I. I. Ship of NIDR, in which all attempts to isolate the herpes simplex or other virus from aphthous stomatitis lesions were unsuccessful.

Further differentiation between the viral and nonviral lesions was demonstrated by Dr. H. R. Stanley, Jr., of the NIDR Clinical Investigative Branch in a histopathologic study which showed that aphthous stomatitis does not exhibit the clearly discernible vesicular stage characteristic of the herpetic lesions. In addition, the aphthous stomatitis lesions extend more deeply into the tissues and often persist for longer periods.

Adding further to our knowledge of the pathogenesis and etiology of the herpetic and nonherpetic diseases has been an epidemiological study of a large group of college students in the Philadelphia area. Data from these investigations will complement the earlier clinical-pathological studies.

Family Feels Impact Of Mental Illness

An aspect of the impact of mental illness upon the family is the effect upon the network of relationships and responsibilities entailed in family living. In a preliminary report of research conducted with families from which either husband or wife was hospitalized for schizophrenia, Dr. John A. Clausen, Chief of the National Institute of Mental Health Laboratory of Socio-Environmental Studies, reports that these families frequently undergo a progression of disruptions and interpersonal conflict well in advance of the patient's hospitalization.

For females, the marital role itself was most often the first to show a deficit, disruption coming through accusations of infidelity, moving out of the marital bed, or a substantial measure of psychological withdrawal. The wife's duties as housekeeper were next most frequently impaired; housecleaning, cooking, doing the laundry became irregular or didn't get done. Only in one instance did the care of the children seem to be markedly impaired in the early stages.

By three months prior to hospitalization, half of the 14 female patients studied were performing almost none of their usual household tasks and two others were performing with substantial decrease in effectiveness or at markedly inappropriate times.

Three of the ten male patients had likewise markedly diminished their performance of household tasks by three months prior to hospitalization, and three others ceased to help at home during the last month. Their functions were, however, less critical to maintenance of the household. All but two of the male patients in the sample held their jobs and performed more or less adequately in them up to a month or less before they were hospitalized.

Almost all performance of essential life tasks was impaired at the end, though many of the women continued to care for their children and the men to meet the requirements of the job down to the last few days. Indeed, these seem to be the minimal role functions that must in general be sustained if the family is to go on at all.

Extreme conflict may have been the pattern of marital interaction for months, but as long as the disturbed wife looked after her children or the disturbed husband managed to hold his job, some personal integration and some family integration was maintained.

The findings were reported at the meetings of the American Sociological Society in Chicago.