



*Bulletin* of the  
**University of Minnesota Hospitals  
and  
Minnesota Medical Foundation**



**Psychological Evaluation  
of Surgical Patients**

BULLETIN OF THE  
UNIVERSITY OF MINNESOTA HOSPITALS  
and  
MINNESOTA MEDICAL FOUNDATION

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UNIVERSITY OF MINNESOTA MEDICAL SCHOOL  
CALENDAR OF EVENTS

Visitors Welcome

December 13 - 18, 1948

No. 226

Monday, December 13

- 8:00 - Fracture Rounds; A. A. Zierold and Staff; Ward A, Minneapolis General Hospital.
- 9:00 - 9:50 Roentgenology-Medicine Conference; L. G. Rigler, C. J. Watson and Staff; Todd Amphitheater, U. H.
- 9:00 - 10:50 Obstetrics and Gynecology Conference; J. L. McKelvey and Staff; M-109, U. H.
- 10:00 - 12:00 Neurology Rounds; A. B. Baker and Staff; Station 50, U. H.
- 11:00 - 11:50 Roentgenology-Medicine Conference; Staff; Veterans' Hospital.
- 11:00 - 12:00 Cancer Clinic; K. Stenstrom and A. Kremen; Eustis Amphitheater, U. H.
- 12:00 - 1:00 Physiology Seminar; The Influence of Protein Level on the Action of Sodium Chloride and Desoxycorticosterone Acetate; J. R. McQuillan; 214 M. H.
- 12:15 - 1:20 Obstetrics and Gynecology Journal Club; Staff Dining Room, U. H.
- 12:30 - 1:20 Pathology Seminar; Hepatoma; Edward Mason; 104 I. A.
- 12:30 - 1:30 Surgery Problem Case Conference; A. A. Zierold, C. Dennis and Staff; Small Class Room, Minneapolis General Hospital.
- 1:00 - 2:00 Kellogg Lecture; Studies in Functional Cardiovascular Disease; Meyer Friedman; Eustis Amphitheater, U. H.
- 2:00 - 3:00 Kellogg Lecture; Studies in Functional Cardiovascular Disease; Meyer Friedman; Powell Hall Amphitheater.
- 1:30 - 2:30 Surgery Grand Rounds; A. A. Zierold, C. Dennis and Staff; Minneapolis General Hospital.
- 1:30 - 2:30 Pediatric-Neurological Rounds; R. Jensen, A. B. Baker and Staff; U. H.
- 3:45 - Pediatric Seminar; Iron Metabolism; R. Engel; 6th Floor, Child Psychiatry, U. H.
- 5:00 - 5:50 Clinical Medical Pathologic Conference; Todd Amphitheater, U. H.
- 5:00 - 6:00 Urology-Roentgenology Conference; D. Creevy and H. M. Stauffer and Staffs; M-109, U. H.

8:00 - Special Lecture; Functional Cardiovascular Disease; Meyer Friedman, Dir., Harold Brunn Inst. for Cardiovascular Research, Mount Zion Hospital, San Francisco; MeS Amphitheater.

Tuesday, December 14

8:30 - 10:20 Surgery Seminar; Lyle Hay; Small Conference Room, Bldg. I, Veterans' Hospital.

9:00 - 9:50 Roentgenology Pediatric Conference; L. G. Rigler, I. McQuarrie and Staff; Todd Amphitheater, U. H.

10:30 - 11:50 Surgical Pathological Conference; Lyle Hay and Robert Hebbel; Veterans' Hospital.

12:30 - 1:20 Pathology Conference; Autopsies; Pathology Staff; 102 I. A.

2:00 - 2:50 Dermatology and Syphilology Conference; H. E. Michelson and Staff; Bldg. III, Veterans' Hospital.

2:00 - 4:00 Kellogg Lecture; Etiology and Pathology of Rheumatic Heart Disease; Benjamin J. Clawson; Eustis Amphitheater, U. H.

3:15 - 4:20 Gynecology Chart Conference; J. L. McKelvey and Staff; Station 54, U. H.

3:30 - 4:20 Clinical Pathological Conference; Staff; Veterans' Hospital.

4:00 - 5:00 Pediatric Rounds on Wards; I. McQuarrie and Staff; U. H.

5:00 - 5:50 Urology Pathological Conference; C. D. Creevy and Staff; Todd Amphitheater, U. H.

5:00 - 6:00 X-ray Conference; Dan Fink, Bernard O'Loughlin and Staff; Veterans' Adm. Hospital.

8:00 - Minnesota Pathological Society Meeting; The Value of the Koombs' Test in the Diagnosis of Hemolytic Anemia; Patrick L. Mollison, British Postgraduate Medical Education, London, England; MeS Amphitheater.

Wednesday, December 15

8:00 - 8:50 Surgery Journal Club; O. H. Wangensteen and Staff; M-515, U. H.

8:30 - 10:00 Orthopedic-Roentgenologic Conference; Edward T. Evans; Room 1AW, Veterans' Hospital.

8:30 - 12:00 Neurology Rehabilitation and Case Conference; A. B. Baker and Joe R. Brown; Veterans' Hospital.

11:00 - 12:00 Pathology-Medicine-Surgery Conference; O. H. Wangensteen, C. J. Watson and Staff; Todd Amphitheater, U. H.

12:00 - 12:50 Radio Isotope Seminar; Review of Uses of Radio Iron; Frederick Reis; Rm. 216, Hospital Court, Temporary Bldg.

- 1:00 - 2:00 Kellogg Lecture; Roentgen Diagnosis of the Cardiovascular System; H. M. Stauffer; Todd Amphitheater, U. H.
- 4:00 - 5:00 Infectious Disease Rounds; Medical Conference Room; Veterans' Adm. Hospital.
- 4:00 - 5:30 Surgery-Physiology Conference; O. H. Wangensteen and M. B. Visscher; Todd Amphitheater, U. H.

Thursday, December 16

- 8:15 - 9:00 Roentgenology-Surgical-Pathology Conference; Craig Freeman and H. M. Stauffer; M-109, U. H.
- 8:30 - 10:20 Surgery Grand Rounds; Lyle Hay and Staff; Veterans' Hospital.
- 9:00 - 9:50 Medicine Case Presentation; C. J. Watson and Staff; M-109, U. H.
- 10:00 - 11:50 Medicine Ward Rounds; C. J. Watson and Staff; E-221, U. H.
- 10:30 - 11:50 Surgery-Radiology Conference; Daniel Fink and Lyle Hay; Veterans' Hospital.
- 11:00 - 12:00 Cancer Clinic; K. Stenstrom and A. Kremen; Todd Amphitheater, U. H.
- 11:30 - 12:30 Clinical Pathology Conference; Steven Barron, C. Dennis, George Fahr, A. V. Stoesser and Staffs; Large Class Room, Minneapolis.
- 2:00 - 3:00 Kellogg Lecture; Roentgen Diagnosis of the Cardiovascular System; H. M. Stauffer; Todd Amphitheater, U. H.
- 2:00 - 3:00 Errors Conference; A. A. Zierold, C. Dennis and Staff; Large Classroom, Minneapolis General Hospital.
- 1:00 - 1:50 Fracture Conference; A. A. Zierold and Staff; Minneapolis General Hospital.
- 4:30 - 5:20 Ophthalmology Ward Rounds; Erling W. Hansen and Staff; E-534, U. H.
- 5:00 - 6:00 X-ray Seminar; Non-Rotation of the Bowel; Ernest Everett; Todd Amphitheater, U. H.

Friday, December 17

- 8:30 - 10:00 Neurology Grand Rounds; A. B. Baker and Staff; Station 50, U. H.
- 9:00 - 9:50 Medicine Grand Rounds; C. J. Watson and Staff; Todd Amphitheater, U. H.
- 10:00 - 11:50 Medicine Ward Rounds; C. J. Watson and Staff; E-221, U. H.
- 10:30 - 11:20 Medicine Grand Rounds; Staff; Veterans' Hospital,
- 10:30 - 11:50 Otolaryngology Case Studies; L. R. Boies and Staff; Out-Patient Department, U. H.

- 11:00 - 12:00 Surgery-Pediatric Conference; C. Dennis, A. V. Stoesser and Staffs; Minneapolis General Hospital.
- 12:00 - 1:00 Surgery Clinical Pathological Conference; Clarence Dennis and Staff; Minneapolis General Hospital, Small Classroom.
- 1:00 - 1:50 Dermatology and Syphilology; Presentation of Selected Cases of the Week; H. E. Michelson and Staff; W-312, U. H.
- 1:00 - 2:50 Neurosurgery-Roentgenology Conference; W. T. Peyton, Harold O. Peterson and Staff; Todd Amphitheater, U. H.

Saturday, December 18

- 7:45 - 8:50 Orthopedics Conference; Wallace H. Cole and Staff; Station 21, U. H.
- 8:00 - 9:00 Pediatric Psychiatric Rounds; Reynold Jensen; 6th Floor, West Wing, U. H.
- 8:00 - 9:00 Surgery Literature Conference; Clarence Dennis and Staff; Minneapolis General Hospital, Small Classroom.
- 9:00 - 9:50 Medicine Case Presentation; C. J. Watson and Staff; E-101, U. H.
- 9:00 - 10:30 Pediatric Grand Rounds; I. McQuarrie and Staff; Eustis Amphitheater, U. H.
- 9:00 - 12:00 Surgery-Roentgenology Conference; O. H. Wangensteen, L. G. Rigler, H. M. Stauffer, and Staff; Todd Amphitheater, U. H.
- 9:00 - 12:00 Child Psychiatry Conference; Powell Hall Amphitheater.
- 10:00 - 11:50 Medicine Ward Rounds; C. J. Watson and Staff; E-221, U. H.
- 10:00 - 12:50 Obstetrics and Gynecology Grand Rounds; J. L. McKelvey and Staff; Station 44, U. H.
- 11:00 - 11:50 Urology Seminar; Secondary Neoplasms of the Ureter; E. A. Webb; E-101, U. H.

## II. PSYCHOLOGICAL EVALUATION OF SURGICAL PATIENTS

Robert A. Schneider  
Jerome S. Gray  
Charles U. Culmer

Patients equally ill from the same disease react quite differently. Patients with the same pathology and undergoing the same surgical procedures vary similarly in their speed and adequacy of recovery. It is the purpose of this study to investigate some of the psychological factors related to recovery. In addition an attempt was made to determine which of these factors could be measured and grouped in a scale which would be useful to the surgeon in the prediction of postoperative success in the total recovery process. The ability to predict success or failure of the surgical patient depends in part in knowing the patient as a person.

The family physician has the advantage of knowing more about the patient, his family and his life situation. He is in a better position to evaluate with a fair degree of accuracy some of the psychological factors involved in predicting recovery. The busy surgeon in a large clinic may see a patient for the first time just two or three days prior to surgery. He is generally unable to spend sufficient time with the patient to gain similar knowledge. A simple scale or test which could be administered to the patient would add some knowledge of the patient's personality and might increase the surgeon's ability to foresee the outcome.

In order to evaluate "recovery" it is first necessary to define what is meant by "recovery". Perhaps an adequate definition of the term is that stated by Ruesch<sup>1</sup>. "For acute disease

the criterion of recovery may be described as that level of psychophysiological functioning which prevailed before the onset of the disease. However, this criterion is not adequate for chronic cases, because many morbid conditions may last a lifetime. In these cases complete recovery is never achieved; nevertheless, the majority of individuals afflicted reach a state of equilibrium, in which they live happily for many years, in spite of their disability." A minority of the patients suffering from acute and chronic illness never do adequately adjust. It is with this group of patients that the surgeon is most likely to be concerned.

Relatively little work has been reported in the literature concerning the psychological aspects of recovery following illness. To our knowledge the only important work that has been done on the study of invalidism is a monograph published by Jurgen Ruesch in 1946 entitled "Chronic Disease and Psychological Invalidism."

The late Doctor A. E. Walch, Clinical Associate Professor of Medicine here at the University, in December 1947, expressed his interest in this general problem and further suggested that such an investigation be started. He was instrumental in coordinating the mutual interests of the Departments of Psychiatry and Surgery. It was only through the combined efforts of Doctor Hastings and Doctor Wangenstein and through their cooperation that this study was made possible. The present study is an initial step in this direction and represents a joint effort of the two departments. Funds for this research were made available through the Director of the hospital, Mr. Ray Amberg.

### Method

At the outset there were a number of possible means of study available to us.

It would have been possible to interview intensively a small number of surgical patients and attempt to come to an understanding of the psychological dynamics of each patient's personality. This method was rejected because it was too time consuming and therefore would necessarily limit the number of patients studied. There was as a rule insufficient time between the admission of the patient and the time of surgery to permit such intensive interviewing. By using such a method we could not be sure that we had covered an adequate sample of surgical patients and any information produced by such an approach could not easily be useful to the surgeon since it would necessitate employment of skilled time.

A more objective study of a larger number of patients was considered more valuable at this time. This method was employed because many patients could be seen simultaneously and the skilled time expenditure per patient would be appreciably shortened. The patient could generally complete the questionnaires within "one sitting". If one of the instruments used in the study or a scale derived therefrom proved to be of value in differentiating the "good" recovery from the "poor" recovery patients, then such a test could be administered to the patient by relatively untrained persons such as clerical personnel.

The patients were sent down from the surgical floors to the Out-patient Department on Tuesday and Thursday afternoons between 12:30 and 4:30 p.m. Patients included in this study were seen during the period from January 20 to July 15, 1948. In all 275 patients were seen and tested.

It was the intention of the authors to see every patient admitted to the general surgical services during the period of this study. The rate of attrition was high for several reasons. Chiefly, patients were lost to the study because of their unavailability during the usual testing periods prior to surgery. The bulk of the patients not seen

were those who entered the hospital and went to surgery between the testing periods, except for a small number who were seen on the wards. A number of patients were unavailable because of the priority of various surgical procedures on the wards. A few patients could not be seen because of their critical condition. Those patients who were illiterate or who were unable to read because of poor eyesight were necessarily excluded. Included in the study were private, per diem, Baker Plan, and County patients. The patients' ages ranged from 15 years through 82 years. There were approximately 50 per cent men and 50 per cent women in the study. The proved diagnoses of the patients in this study included 40 malignancies of all types with and without metastases, 10 benign neoplasms, 15 duodenal ulcers, 11 cases of cholecystitis and cholelithiasis, 4 gastric ulcers, 4 cases of ulcerative colitis, 4 inguinal hernias, and 31 miscellaneous cases ranging from ligation of patent ductus arteriosus and thyroidectomies to abscesses requiring surgical drainage.

Preoperatively the patient was given two psychological tests, The Minnesota Multiphasic Personality Inventory<sup>2</sup> and The Schneider Gray Inventory. In addition, a data sheet, consisting of various historical items, was completed.

The Minnesota Multiphasic Personality Inventory, hereafter referred to as the MMPI, consists of 550 statements which the patient answers as "true," "false," or "cannot say" about himself. These statements cover many aspects of behavior. The MMPI has been extensively validated on both psychiatric and non-psychiatric groups.

The Schneider-Gray Inventory, hereafter referred to as the SGI, is a 57 item questionnaire developed by the authors for use in this investigation. The items are scored by the patient along a continuum of a five-step graphic rating scale. The statements comprising the test were suggested by items on other personality inventories and in part were original. Many of the items were formu-



10. I notice trouble in swallowing.

Very often	Frequently	Occasionally	Rarely	Never
------------	------------	--------------	--------	-------

11. I have had operations before.

None	1	2	3	More than 3
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12. The other operations I have had helped me.

Very much	Quite a lot	As much as they help most people	Very little	Not at all
	"	"	"	"

13. I was able to go back to my regular work after the other operations

Very slowly	Slower than most people	Same as most people	Quicker than most people	Very Quickly
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14. I know what will be done to me at my operation.

Exactly	Good idea	Some idea	Slight idea	No idea
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15. Most probably I will be in the hospital.

2 months or more	4 weeks	2 weeks	1 week	4 days or less
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16. I have had a lot of aches and pains besides those that made it necessary for me to have this operation.

A great number	More than most people	Average number	Less than most people	No others
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17. I am fearful of operations.

Not at all	Less than most	As much as most people	Very much	Terribly
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18. Hospitals depress me.

Not at all	A little	Somewhat	Much	Very much
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PRE-OPERATIVE DATA SHEET

Date \_\_\_\_\_

1. Name \_\_\_\_\_
2. Hospital No. \_\_\_\_\_ Age \_\_\_\_\_
3. Marital Status \_\_\_\_\_
4. Home Town Address \_\_\_\_\_
5. Next of Kin to Contact \_\_\_\_\_  
 (Name) \_\_\_\_\_ (Relation) \_\_\_\_\_  
 \_\_\_\_\_  
 (Address) \_\_\_\_\_
6. Birthplace \_\_\_\_\_ Nationality \_\_\_\_\_
7. Number of Children \_\_\_\_\_
8. Religion \_\_\_\_\_
9. Occupation \_\_\_\_\_
10. Financial Level ( ) Private ( ) Per Diem ( ) County
11. Educational Level (Age in grade) \_\_\_\_\_
12. Father born in this country? Yes No If not, where was he born \_\_\_\_\_
13. Mother born in this country? Yes No If not, where was she born \_\_\_\_\_
14. Number of siblings \_\_\_\_\_
15. Clinical Diagnosis \_\_\_\_\_
16. Surgical Procedure \_\_\_\_\_
17. Duration of Present Illness \_\_\_\_\_
18. Reason for Surgery \_\_\_\_\_  
 \_\_\_\_\_
19. Previous Operations \_\_\_\_\_  
 \_\_\_\_\_
20. Patient's Adjustment in Hospital  
 Ambulation \_\_\_\_\_  
 Cooperation \_\_\_\_\_  
 Emotional \_\_\_\_\_

SPECIAL SURGICAL STUDY

Date \_\_\_\_\_

Patient's Name \_\_\_\_\_

Hospital No. \_\_\_\_\_

This is part of a study conducted jointly by the Departments of Surgery and Psychiatry.

It is requested that the member of the surgical staff seeing this patient supply the information indicated below even though he may have previously done so for the same patient.

1. Considering both the organic and the functional factors, this patient is progressing -- (circle one)

a. very well      b. about average      c. poorly      d. very slowly

2. Complications:

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3. If this patient's postoperative progress is considered to be slower than average (c or d above), estimate the percentage due to organic factors by circling one of the percentage figures listed below:

0      10      20      30      40      50      60      70      80      90      100

Signed \_\_\_\_\_ M.D.

lated with the view in mind of tapping certain of the patient's feelings relating to the hospital, the actual surgical procedures, and to certain somatic complaints. Some of the items were designed to bring out general feelings and attitudes of the patient.

The data sheet is a form upon which was listed such information as financial status, occupation level, education, number of previous operations, character and duration of the present illness and various other items. This information was obtained from the patient's hospital record and from the patient directly when the chart was deficient in this regard.

Very little resistance from the patient to the test situation was encountered in this study. In general, the patient regarded the taking of the tests as just a part of the routine pre-operative work-up. One patient refused completely to have anything to do with the tests. A few others were hesitant but completed the tests after a brief explanation was given. On the average the tests and data sheets were completed in  $2\frac{1}{2}$  hours.

After surgery when the patient returned to the general surgical clinics for routine follow-up, an evaluation was made by the attending surgeon. This was accomplished by the surgeon who completed a brief standard form which was inserted into the chart and removed each time at the end of the clinic period. The form was not left in the chart so as to influence the evaluation on subsequent visits of the patient. In completing the form, the surgeon noted whether the patient was doing "excellent," "average," "below average," or "poorly." A space was provided for the listing of any known complications. If the patient was judged as doing "below average" or "poorly," the surgeon was requested to rate what percentage of the difficulty could be attributed to organic factors. The remaining percentage was then assumed to represent the functional component.

The third portion of the study con-

sisted of a post card forwarded to the nearest relative or friend of the patient who noted the date of arrival at home of the patient and the date the post card was filled out. This enabled us to determine the period the informant had in which to arrive at an evaluation of the patient's progress. In addition the informant noted whether the patient was getting along "very well," "about average," "poorly," or "very slowly." Finally a statement was completed indicating whether the patient was working as hard as before, "full time," "part time," "not working," or "sick in bed."

### Results

Of the 275 patients seen and tested, 228 had gone to surgery at the time the analysis of the data was instituted. Originally it was expected that a criterion of "recovery" could be developed on the basis of the surgeon's evaluation or the relative's estimation of progress or upon a combination of the two. Subsequently it was found that the surgeon's reports were not of value at least for this preliminary investigation because of the relatively few patients evaluated in this manner. Furthermore, the subjective standards of "recovery" varied too greatly from surgeon to surgeon. Indeed, in some patients seen by more than one surgeon in successive weeks the evaluations were in sufficient disagreement as to render their meaning obscure at this time. For these reasons the surgeons' reports were not made use of in the present study.

Eleven patients expired in the hospital or shortly after leaving the hospital which reduced the number of patients to 217. Post cards were sent to the relatives of these 217 patients and of this number 188 responded by the time the analysis was begun. This number was further reduced to 153 through subsequent deaths, incompleteness of the MMPI and because of insufficient data on the post card. The MMPI profiles were then checked according to their validity scales, and 34 patients were eliminated because of invalidity on the "L" score

Patient's Name \_\_\_\_\_

Hospital No. \_\_\_\_\_

Date \_\_\_\_\_  
(fill in)1. When did the patient return home? Date \_\_\_\_\_  
(fill in)

2. The patient is getting along (circle one below):

A. Very well B. About average C. Poorly D. Very slowly

3. The patient is working (circle one below):

A. Working as hard as before, full time  
B. Part time work  
C. Not working  
D. Sick in bed

Signed \_\_\_\_\_

- - -

(T score more than 70) and the "F" score (T score more than 80). One hundred nineteen patients comprised the final group used in developing our scale. These patients met the following criteria. They had valid MMPI profiles, they had completed the SGI, and the relatives had submitted an adequate post card report.

The 119 patients were then divided into a good recovery and a poor recovery group on the basis of the relative's report. All patients who were reported as being back to work as hard as before (full time) were placed in the good group. In addition those patients who were reported as doing very well or about average while doing part time work or not working were also included in the good group. Those patients sick in bed were placed in the poor recovery group as were the patients reported as getting along poorly or very slowly while doing part time work or not working. The good group consisted of 93 patients and the poor group of 26 patients.

The good and poor groups were then contrasted to determine what differences existed relative to the historical data. No statistically significant differences were noted when the age, sex, number of children, birthplace, financial status, occupational level, education, duration

of illness, and number of siblings were considered. However, a difference was noted in the number of previous surgical procedures. A higher percentage of the "poor" recovery cases had four or more previous operations than did the "good" group. Figure 1 shows that 30 per cent of the poor group has had four or more previous surgical procedures as opposed to 5 per cent of the good group. 54 per cent of the good patients and 27 per cent of the poor patients had had one or two previous operations. These figures were statistically significant ( $p = .0003$ ). This is common knowledge among the medical profession and is in agreement with Menninger's discussion of polysurgical addiction.

Figure 1

No. Previous Operations	0	1 or 2	3	4 or more
Per cent good	30	54	11	5
Per cent poor	30	27	13	30

The MMPI profiles were sorted into six classifications according to the criteria developed by Ruesch.<sup>3</sup> The six classifications were "normal," "mild

neurotic," "severe neurotic," "psychopathic," "undifferentiated abnormal," and "psychotic." A greater percentage of patients in the good group fell into the "normal" classification, while a greater percentage of the poor group fell into the "severe neurotic" classification. These differences were not statistically significant.

In studying the individual scales of the Multiphasic, it was found that no one scale appeared to differentiate the good from the poor patients. For example, the "D" did not show the poor group to be more depressed. The Multiphasic has many possibilities which when studied in detail may later reveal significant information.

An attempt was made to differentiate the poor and good groups by making use of those items on the SGI which showed statistically significant differences in distribution (according to the chi square). A scale made up of 10 of the original 57 items was developed and a cutting score was used. This was found to be of no practical use for the individual case even though the differences between the two groups were significant.

The final scale used by the authors was developed in the following manner. It was thought that the "K" factor<sup>4</sup> on the Multiphasic might be of value in this particular study since it measures test-taking attitudes of the patient. A high "K" score generally indicates defensiveness on the part of the patient ("unwillingness to say bad things about himself"). A low "K" score indicates the converse to be true, i.e., being frank and open about oneself (in the extreme, "willingness to put oneself in a bad light"). It was thought that the responses to the SGI items if taken at face value would not be getting at the true picture since some of the patients would be trying, if only subconsciously, to make a very good or a very bad impression.

The patients of the good group were divided into high "K" patients and low

"K" patients, as were the patients in the poor classification. We then had four different groups (the high "K" good, low "K" good, high "K" poor and the low "K" poor groups). The differentiation between high "K" and low "K" was made at a total score of 60 on the "K" scale (i.e., one standard deviation above the mean for the general population).

The good and poor cases with high "K" were then contrasted among themselves and a scale of significant items on the SGI was developed. The good and poor cases with low "K" were likewise contrasted and a group of significant items developed. Those of the significant items common to both low and high "K" groups were chosen for the final scale. These items were 14 in number. It was noted that five of these items were scored in the reverse direction for high and low "K" groups. It is these five items that are believed to be particularly influenced by the attitudes measured on the "K" factor on the MMPI. The remaining nine SGI items were scored in the same direction.

The final scale was applied individually to the 93 good patients and to the 26 poor patients, taking into consideration their "K" scores to determine what scoring would be used. A score of one was in the poor direction. A score of three was in the good direction. A score of two was assigned to those responses designated as "neutral." Scores on the 14 item scale ran from 23 through 35. Figure number 2 shows the distribution of the scores. When cutting scores were applied, differentiation between the good and poor patients was highly significant. If all scores from 23 to 26, from 27 and 28 and finally from 29 through 35 are grouped together, it will be seen that the bulk of the poor cases are included in the low score group (23-26) and the bulk of the good cases in the high score group (29-35). Figure 2 shows this distribution. It is clearer when these figures are converted into percentages. This is shown in Figure 2. It can be seen that 69 per cent of the poor cases fall in the low score group while only

Figure 2

Scores	23	24	25	26	27	28	29	30	31	32	33	34	35	Total
Number of Cases Good Recovery Group	0	1	0	4	10	13	16	14	11	9	8	3	4	93
Number of Cases Poor Recovery Group	3	3	5	7	4	2	0	1	1	0	0	0	0	26

Scores	23-26	27-28	29-35	Total
Number of Cases Good Recovery Group	5	23	65	93
Number of Cases Poor Recovery Group	18	6	2	26

Scores	23-26	27-28	29-35	Total
Per cent Cases Good Recovery Group	5%	25%	70%	100%
Per cent Cases Poor Recovery Group	69%	23%	8%	100%

five per cent of the good recovery cases are in this group. In the middle range (27-28) are found 25% of the good recovery cases and 23 per cent of the poor recovery cases. In the high score group (29-35) are found 70 per cent of the good cases and only 8 per cent of the poor recovery cases. The probability that a patient with a low score (23 through 26) will make a good recovery is only 1 in 15. A patient scoring in the middle range (27-28) has a 50-50 chance of doing well. A patient scoring in the high range (29-35) has 9 chances in 10 of making a good recovery.

Brief summaries of representative cases are presented to illustrate some of the material discussed.

Case No. 88. H.S., a 54 year old farmer of German extraction, was admitted as a private pa-

tient to the hospital on 2-17-48 complaining of epigastric distress and a 15 pound weight loss over a three months' period. One year previously he had a hematemesis and melena and a roentgenologic diagnosis of gastric ulcer had been made. He had had no previous surgery. Physical examination and x-ray studies of the upper gastrointestinal tract revealed an ulcerative lesion on the lesser curvature believed to be malignant. On the third hospital day the psychological evaluation was done. On the MMPI he received a K score of 75 which placed him in the high "K" group. His score on the 14 significant items of the SGI was 33. He could thus be classified as a good recovery case. On the following day he went to surgery and underwent a partial gastrectomy group 3 (92%). The pathologist's diagnosis was ulcerating adenocarcinoma of the stomach with metastatic nodes. He

was discharged 7 days later having had an essentially uneventful course. Seven months later the postcard from the patient's wife indicated that the patient was getting along very well and was back to part time work. This report indicated according to the author's criteria, good recovery. On subsequent returns to the outpatient department in June, August, October and November the patient was found to be doing very well and without complaints.

Case No. 4. ., an obese 57 year old widow was admitted as a county patient on 4-4-48 for surgical treatment of multiple gastric polyps revealed by x-ray study in April 1947. This patient had had surgery on one occasion in 1942 at this hospital at which time a subtotal hysterectomy and a bilateral salpingoophorectomy and an umbilical hernia repair was performed. She had made a satisfactory recovery from this surgery. On the third hospital day she was given the psychological tests. On the MMPI she received a "K" score of 49 which placed her in the low "K" group. She made a score of 32 on the 14 SGI items, which placed her in the good recovery class. One week later she went to surgery where a subtotal gastrectomy (90%) was performed. The pathologist reported multiple benign gastric polypi. She was discharged one week later having made a good convalescence. Four months later a postcard from her niece showed the patient to be getting along very well but not working. The postcard report indicated that the patient was in the good recovery group. Subsequent outpatient visits confirmed this impression.

Case No. 32. , a 47 year old unemployed mechanic, born in Sweden, was admitted as a per diem patient on 4-47-48 with multiple complaints including nervousness, insomnia and constipation. He had had four previous operations including a cholecystectomy and appendectomy in 1939, a plastic repair for redundant rectal mucosa in 1935, drainage of left antrum 1929 and varicose vein ligation in 1939. A healed duodenal ulcer and a small pre-

pyloric ulcer was found at the Mayo Clinic in 1935. In 1946 he was studied on the psychiatric service of this hospital and a diagnosis of duodenal ulcer and psychoneurosis (hypochondriasis) was made. Six weeks prior to surgery the patient took the psychological tests. He received a "K" score of 68 on the Multiphasic which placed him in the high "K" group. On the SGI items he scored 25 which placed him in the poor recovery group. He went to surgery on 5-7-48 at which time a transabdominal vagotomy, coeliac and superior and inferior mesenteric ganglionectomies were performed. Five days later he was discharged from the hospital. The postcard report was received 3½ months later from the patient's wife which indicated the patient was getting along very slowly and was not working. The postcard report placed the patient in the poor recovery group. Subsequent to discharge, the patient was seen 12 times in the outpatient department, each time multiple complaints including insomnia, gas pains and diarrhea.

Case No. 188. ., a 34 year old housewife, was admitted as a county patient on 3-20-48 with exacerbation of a chronic ulcerative colitis (six to eight stools a day). In November 1947, this patient had had a transthoracic vagotomy for ulcerative colitis. This was her only previous surgery. Because she failed to progress satisfactorily, an ileostomy was decided upon. One month prior to surgery she was given the psychologic tests. She received a "K" score of 51 which places her in the low "K" group. On the SGI items she obtained a score of 26 which classified her as belonging in the poor recovery group. She went to surgery on 4-5-48 at which time a double-barreled ileostomy was performed. After a very stormy convalescence which included the development of multiple subcutaneous abscesses, she was discharged on 7-15-48. A postcard was received from the husband on 9-9-48 which stated that the patient was getting along very slowly and was not working. Between June and November of this year she was seen on 12 occasions in the outpatient department when



several more abscesses of the skin were treated and the patient complained of intermittent periods of diarrhea and cramps.

### Discussion

It is only fair to ask of what value is a predictive scale to the surgeon. The surgeon is able to predict with a fair degree of accuracy what the outlook will be in so far as life expectancy is concerned. In addition he expects a certain percentage of his patients to do poorly with regard to "total recovery." Presumably an instrument which could predict which of his patients would do well or poorly would be valuable for the following reasons. The surgeon would know better how to handle the patient in so far as emotional adjustment in the hospital and during the convalescent period are concerned. He can better prepare the relatives as to how to handle the particular patient postoperatively. Conceivably the choice of surgical procedure might be influenced by a better understanding of the patient. Certain complications in the surgical patient defy explanation on a purely anatomic or physiologic basis. These may become more explicable in terms of the patient's personality. In the event that a patient is judged to be a poor recovery risk prior to surgery on a personality basis, some assistance from the psychiatrist may be valuable.

It must be emphasized that this study is but a preliminary investigation. Much of the data secured has not been as yet thoroughly analyzed. It seems possible that further discriminating items will appear with further study. If it is possible to secure a larger number of evaluations by the surgeons, it is possible these may prove useful in sharpening the criterion. A more adequate follow-up over a longer period of time would further aid the evaluation of the degree of recovery. With a view to shortening the test procedure, it may be possible to determine from the SGI itself which cases should be classified as high or low K. It may then allow the surgeon to give a relatively abbrev-

iated test. We do not expect the latter refinement to be possible for some time as additional data may yet be necessary and valuable.

The scale at the present time does differentiate very well. The implications of such a differentiation should be viewed with caution since many criticisms can be leveled at the present study concerning the criterion to be discriminated. In the future a cross validation on a new group of patients will tell much as to the utility of the present scale. The authors feel that this type of research shows much promise.

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### III. MEDICAL SCHOOL NEWS

#### Alumni News

Below is a letter received from a medical alumnus of the University class of 1941:

November 3, 1948

Gentlemen:

Your complimentary copy of the Bulletin of the University Hospital is like a letter from home. My prospects of having time to read future bulletins during the winter are very good as the snow here is already piling high with good chances of being snowed in once in awhile. Most of the roads in the Park are already blocked with snow; this is Minnesota glorified. Spending the winter here will be a new experience for my wife, two sons, and myself after leaving Minnesota last May. Here in Mammoth we have deer, elk, coyotes, and bear crossing the lawn every day -- the kids getting a big kick out of feeding the deer bread and crackers. We would be glad to have any members going through the Park next summer stop in to see us.

Sincerely,  
Norman C. Carlson, M.D.  
Mammoth, Yellowstone Park

Dr. Louisa E. Boutelle ('16MD) former assistant Minneapolis city physician, died recently in Iowa. She was 62 years of age. For the past several years, she has been a staff physician at state mental hospitals in Concord, New Hampshire, and Provo, Utah.

Dr. Harold R. Hennessey ('31MD) was the speaker at the opening session of the North Central Medical Association convention held in Minneapolis recently. Dr. Hennessey resides in Chicago where he is secretary of the Council on National Emergency Medical Service of the American Medical Association.

Dr. Earl H. Dunlap ('24MD) has been

elected to the International College of Surgeons. He will be admitted to membership at the college's thirteenth annual assembly in St. Louis, Missouri, November 15. Dr. Dunlap's offices are located at 333 Medical Arts Building, Minneapolis.

Dr. Loren J. Jacobsen ('46MD) now interning at St. Barnabas Hospital, Minneapolis, has been commissioned first lieutenant in the United States Army Medical Corps reserve.

Dr. Alexander M. Boysen ('45MD) who is interning at St. Francis Hospital, Pittsburgh, Pennsylvania, has been commissioned first lieutenant in the United States Army Medical Corps.

Dr. Lloyd A. Whitesell ('33MD), Minneapolis surgeon, has been elected to the International College of Surgeons.

Dr. LeRoy E. Doolittle ('09MD), prominent pediatrician at Duluth, Minnesota, died November 9. He was 65 years of age.

Dr. John L. Haskins ('16MD) is manager of the Veterans Hospital at Roseburg, Oregon.

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#### New Minnesota Foundation Members

Dr. M.M. Sarnecki, 904 Rice St., St. Paul.  
Dr. A. Eugene Muller, 5 - 12th Ave. N.E., N. St. Paul.  
Dr. Charles W. Waas, 993 Como Lake Blvd. E., St. Paul.  
Dr. J.N. Gehlen, 714 Lowry Medical Arts Bldg., St. Paul.  
Dr. John C. Grant, Sauk Center.  
Dr. A.A. Bailey, 102 - 2nd Ave. S.W., Rochester.  
Dr. N.T. Norris, Caledonia.  
Dr. Robert J. Delmore, Roseau.

Dr. W.F. Nordman, Mora.  
 Dr. Helen Haberer, 607 Medical Arts  
 Bldg., Minneapolis.  
 Dr. L.N. Dale, Red Lake Falls.  
 Dr. Howard A. Vogel, New Ulm.  
 Dr. E.E. Emerson, Osakis.  
 Dr. William E. Johnson, Morgan.  
 Dr. H.B. Burchell, Mayo Clinic,  
 Rochester.  
 Dr. Rudolph B. Skogerboe, Karlstad.  
 Dr. E.E. Keithahn, Sleepy Eye.

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#### Clinical Research Club

The Clinical Research Club will meet Thursday, December 16, at 8:00 P.M. in Eustis Amphitheater, University Hospitals. Speakers and subjects are as follows:

"The Treatment of Parkinsonism with Special Reference to the Use of Dihydro-beta-erythroidine", by Dr. Sidney Shapiro.

"Some New Studies of Porphyrins", by Dr. Samuel Schwartz.

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#### Visiting Lecturers

The Medical School will be host next week to two distinguished physicians.

Dr. Meyer Friedman, Director of the Harold Brunn Institute for Cardiovascular Research, Mount Zion Hospital, San Francisco, California, will deliver the Kellogg Lecture from 1:00 to 3:00 P.M. at Eustis Amphitheater on Monday, December 13. Dr. Friedman will also give a lecture at 8:00 P.M., Monday, December 13, in the Medical Sciences Amphitheater. His subject will be "Functional Cardiovascular Disease." Dr. Friedman has recently published a stimulating monograph on this subject.

Dr. Patrick L. Mollison of the British Postgraduate Medical School, London, England, will be the guest speaker of the Minnesota Pathological Society at its meeting December 14 at 8:00 P.M. in the Medical Sciences Amphitheater. Dr. Mollison's subject will be "The Value of the Coombs' Test in the Diagnosis of Hemolytic Anemia."

#### Kellogg Foundation Lectures

The following lectures will be given during the week of December 13. All medical students, interns, nurses, technicians, dietitians, and physicians are cordially invited to attend these lectures. A special invitation is extended to University Fellows.

Dr. Meyer Friedman	Studies in Functional Cardiovascular Disease	Monday, December 13, 1:00-2:00 Eustis Amph. 2:00-3:00 Powell Hall
Dr. Benjamin J. Clawson	Etiology and Pathology of Rheumatic Heart Disease	Tuesday, December 14, 2:00-4:00 P.M., Eustis Amphitheater, U. H.
Dr. H. M. Stauffer	Roentgen Diagnosis of the Cardiovascular System	Wednesday, December 15, 1:00-2:00 P.M., Todd Amphitheater, U. H.
"	"	Thursday, December 16, 2:00-3:00 P.M., Todd Amphitheater, U. H.