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IN THIS ISSUE:

*Encephalitis Virus
in Japan*

Hospital Report

University of Minnesota Medical Bulletin

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Staff Meeting Report

Studies of the Natural History of Encephalitis Virus in Japan*

William F. Scherer, M.D.†

The arthropod-borne encephalitis viruses have complex life-cycles in nature. They infect, multiply in, and are transmitted by invertebrate mosquito vectors. Vertebrates of at least the classes *Aves* and *Mammalia* become infected, and disease is produced in mammals. In temperate climates where the mosquito vectors occur seasonally, infection of man by these viruses is correspondingly seasonal.

These arthropod-borne viruses are divisible into three immunologic groups known as A, B, and C;¹ the viruses in a single group are immunologically interrelated, unlike those in different groups. Group A includes the viruses of Eastern, Western, and Venezuelan equine encephalomyelitis, Semliki Forest virus, Sindbis virus, and a number of recently isolated agents from other parts of the world. Group B includes the viruses of St. Louis encephalitis, Japanese encephalitis, West Nile fever, Russian spring-summer encephalitis, dengue types I and II, and Murray Valley encephalitis. The viruses in group C have been isolated only recently, and little has been published about them.

Because the viruses within a single group cross-react immunologically to various extents in neutralization, hemagglutination-inhibition, and complement fixation tests, it becomes difficult to interpret antibody studies of these viruses occurring in animals and man in tropical regions where viruses of a single group coexist. For example, workers at the U. S. Army Medical Research Unit in Kuala Lumpur, Malaya, have found that antibody tests alone are often inadequate to differentiate between infection by dengue virus and by Japanese encephalitis virus because the antibodies produced by the two viruses cross-react.

In Japan, on the other hand, the situation is uniquely suitable for experimental studies, since Japanese encephalitis virus is the only group B arthropod-borne virus known there. Moreover, this virus

*This report was given at the Staff Meeting of the University of Minnesota Hospitals on December 13, 1957.

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causes yearly epidemics of disease in man and therefore is prevalent enough in nature to permit study by both antibody and virus isolation techniques. Since 1952, in fact, a study of the natural history of this encephalitis virus in Japan has been in progress at the 406th Medical General Laboratory near Tokyo.² This study has had as its purpose the yearly accumulation of data concerning Japanese encephalitis virus infection in vector mosquitoes and in avian and mammalian hosts, for ultimate analysis and understanding of the cycle of this virus in nature. Two areas near Tokyo were selected for intensive study—one of approximately 70 square miles and the other of about 160 square miles. Each contained a colony of herons and egrets in which studies of birds were carried out. In the smaller area, the human population density in 1955 was approximately 10,000 people per square mile, and in the larger, more rural area, it was 3,200 per square mile.

Observations from 1952-1955 revealed that the vector mosquito, *C. tritaeniorhynchus*, and young nestling herons and egrets in the colonies were infected by Japanese encephalitis virus each year from July to September. This virus was recovered repeatedly from mosquitoes after trituration and inoculation into mice and from the blood of nestling herons and egrets. The infection of birds by Japanese encephalitis virus was not observed directly, but its presence was inferred from the finding of antibodies in these birds. In 1956 a comparative study of this JE virus infection in mosquitoes, birds, pigs, and man was carried out in order to apprehend the quantitative and temporal relationships among different aspects of the natural history of the encephalitis virus and to learn how man becomes involved in its natural cycle. In choosing birds, pigs, and man for these studies, a specific line of reasoning was followed: 1) The vector mosquito becomes infected by ingesting viremic blood from vertebrates. 2) Vertebrate infection by Japanese encephalitis virus results in a period of viremia lasting from one to seven days, followed by the development of antibodies and by resistance to recurring viremia and disease. Thus a vertebrate can infect mosquitoes only during one period of its life. 3) Therefore, to infect large numbers of mosquitoes yearly, a new supply of susceptible vertebrate hosts must be generated during each interepidemic period. 4) This new supply can result either from birth of young animals or from migration of susceptible animals to the area. 5) Since there is no significant migration of susceptible vertebrates into the Tokyo area, the yearly replenishment of the susceptible population presumably occurs by birth of young animals. 6) In

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this area the animals that produce large numbers of young yearly are birds, pigs, rodents, and man. Cows, horses, dogs, rabbits, etc., do not reproduce in large numbers each year, and hence, even though they show a high incidence of infection by Japanese encephalitis virus, they do not contribute significant numbers of new susceptible animals yearly. 7) In rodents surveyed for infection by JE virus, the incidence of infection was found to be less than 1 per cent; this may be related to infrequent biting of rodents by the vector mosquito, *C. tritaeniorhynchus*. 8) Thus the animals that could be considered significant contributors to the population of susceptible hosts in this area were birds, pigs, and man—the animals chosen for study.

The investigations in 1956 showed that Japanese encephalitis virus or evidence of infection by this virus first appeared in nature in the vector mosquito, *C. tritaeniorhynchus* (in early July), subsequently in birds and pigs (from late July until early September), and later in susceptible children (between mid-August and mid-September for some, and between mid-September and late October for others). Infected mosquitoes were present until late September, when the total mosquito population became too small to yield adequate samples for studies of the presence of virus.

Where the JE virus resides during the interepidemic period when the vector mosquito is in hibernation remains uncertain, as with the viruses of Eastern and Western equine encephalomyelitis and of St. Louis encephalitis in this country. A likely guess is that Japanese encephalitis virus winters in the hibernating vector mosquito. Unfortunately, as has been mentioned, this mosquito is present in such small numbers during the winter that it has not yet been found and tested for the presence of virus. Studies of the wintering mechanism of Japanese encephalitis virus in Japan are continuing at the 406th Medical General Laboratory. As knowledge of the ecology and natural history of this and other arthropod-borne viruses increases, the discovery of all phases in their natural cycles may permit application of effective control measures.

REFERENCES

1. Casals, J. and Brown, L. V.: Hemagglutination with Arthropod-borne Viruses, *J. Exp. Med.* 99:429, 1954.
2. Annual Professional Reports, 406th Medical General Laboratory, 1952-1956, Japan.

Staff Meeting Report

University of Minnesota Hospitals Annual Report*

Ray M. Amberg, Ph.C.†

The University of Minnesota Hospitals was established to furnish a means for the University of Minnesota to train students in the multiple fields of medical care. Training is given in the Hospitals under the direct supervision and guidance of a competent staff made up of a full time and part time faculty. The staff is responsible to the State through the University for both the instruction of the students and the care of the patients. This arrangement has proved satisfactory not only in the training of students but also as an economical means for the State to care for many of its indigent sick.

The University of Minnesota Hospitals provides many different medical services within its many units and makes available its facilities and services which enable physicians to offer their patients the best possible care consistent with the progress in medical science.

University of Minnesota Hospitals Admission Policy

In applying for admission to the Hospitals, the patient must be referred by his family physician or by a physician in his local community. This policy, which holds true for patients admitted to the Variety Club Heart Hospital or any other unit of the Hospitals, prevents the criticism that the Hospitals and its clinics are taking patients who should be seen by private practitioners.

Patients are classified according to their ability to pay as County, Per Diem, Teaching and Research, Sixty Fund, Eustis, Rehabilitation, Multiple Sclerosis, Muscular Dystrophy, Private and, in the case of the Heart Hospital, the Variety Club of the Northwest Fund. No distinction is made in the care afforded these various classes.

County patients are those who are totally unable to pay. Their expenses are shared equally by their county and the State. When applying for either outpatient or hospital care, these patients must present county papers filled in by both their physician and their county commissioner (or his representative).

*This report was given at the Staff Meeting of the University of Minnesota Hospitals on December 20, 1957.

†Director, University Hospitals, and Professor, Hospital Administration, School of Public Health

Per Diem patients are those who cannot afford to pay for the services of both a private physician and a private hospital. When applying for either outpatient or hospital care, these patients must present a special form filled in by themselves and their family physicians. They are required to pay their clinic or hospital expenses only, no charge being made for the professional services of the staff.

Teaching and Research patients are primarily destitute unmarried obstetrical patients who are unable to avail themselves of county papers.

The Sixty Fund is a special grant from the State Legislature which is used to hospitalize indigent psychiatric patients for treatment, teaching, and research purposes.

The Eustis Fund was set up by William Henry Eustis to care for indigent children under sixteen years of age.

*The Rehabilitation Fund** is a fund provided by the Legislature for the use of the Hospitals, through the Department of Rehabilitation and Physical Medicine, to aid in the physical rehabilitation of patients.

*The Multiple Sclerosis Diagnostic Fund** of \$15,000 was provided for each year of the past biennium to assist in financing the multiple sclerosis clinic.

*The Muscular Dystrophy Fund** — Funds were provided by the Muscular Dystrophy Association of Minnesota to assist in the diagnosis and treatment of people afflicted with muscular dystrophy.

Private patients, limited in number, are admitted as a convenience to the senior staff. They are referred by other physicians in the state and are afforded the same treatment and privileges as private patients in any private hospital.

*The Variety Club of the Northwest Fund** is a special annual gift from the Variety Club to assist in the care of patients from any of the communities in the Club area, which includes Minnesota, North Dakota, South Dakota, parts of Wisconsin, or any other area indicated by the Club. The Variety Club itself may from time to time request care, to be provided through this Fund, for patients in whom it has a special interest. No charge is made for the professional services of the staff — only for clinic or hospital expenses.

Students Health Service patients are not considered Hospitals patients even though a Hospitals intern is assigned to that service. The Students Health Service has its hospital quarters in the Univer-

*Patients admitted through these funds also require referral by a physician.

sity Hospitals but is not a part of the University Hospitals. It is a service institution maintained by the University with a director, staff, and budget of its own. The new Students Health Service, located on Church Street west of the Hospitals, provides outpatient care only; its infirmary occupies the fourth floor of the North wing of the Hospitals.

Inpatient Department

The number of patients admitted for the year 1955-56 was 14,028, and for the year 1956-57 it was 14,953. The total number of days of hospital treatment was 188,284 for 1955-56, and 185,434 for 1956-57, a decrease of 2,850 patient days. The average stay in the Hospitals was 13.4 in 1955-56 and 12.4 in 1956-57. Deaths for the year numbered 709. Of these, 87 occurred within 48 hours after admission, 24 deaths occurring in the Heart Hospital. Autopsies for the year 1955-56 numbered 465, an average of 82.4 per cent, and in 1956-57 the number was 574, an average of 85.1 per cent. The daily average number of patients in 1955-56 was 514.4; in 1956-57 it was 508.03. The daily cost per patient of operating the Inpatient Department was \$28.18 in 1955-56 and \$29.83 in 1956-57—an increase of \$1.65 per patient day. Surgical operations performed during 1955-56 totaled 8,785, as against 9,922 during 1956-57.

The Psychopathic Department of the Hospitals admitted 525 patients during 1955-56 and 610 in 1956-57. In the Psychopathic Hospital the total number of patient days of hospital care was 19,009 in 1955-56 as against 17,550 in 1956-57.

The waiting list of the Hospitals showed 130 patients on July 1.

Outpatient Department

The number of new patients' visits in 1955-56 was 19,623, and in 1956-57, 20,377. Total patient visits for 1955-56 were 116,369, and for 1956-57, 119,683, an increase of 3,314 visits. The cost of operating the Outpatient Department was \$5.78 per patient visit in 1955-56, and \$5.98 in 1956-57, an increase of 20 cents per patient visit.

The X-ray Department reported 79,050 procedures for the year 1956-57, as against 79,564 for the year 1955-56.

The Department of X-ray Therapy gave 13,507 deep therapy treatments in 1956-57, as against 12,995 in 1955-56. There were 6,287 treatments given on the cobalt machine in 1956-57, as against 5,790 in 1955-56. The number of superficial therapy treatments given in 1956-57 was 939, as against 1,000 in 1955-56. There were 223

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radium treatments given in 1956-57, as against 210 in 1955-56. The total number of strontium (beta ray) treatments given in 1956-57 was 52, as against 59 in 1955-56. In the isotope laboratory 877 tracer studies and treatments were made in 1956-57, as against 1,074 in 1955-56. One patient was treated with radioactive gold, of which 100 millicuries were used in 1956-57; in 1955-56, 10 patients were treated and 1,140 millicuries were used. There were 19 radioiodine human serum albumin blood volume studies in 1956-57, as against 71 in 1955-56. In 1956-57, as in 1955-56, 41 radioactive chromium red cell survival studies were made. There were 77 Phillips Contact Therapy treatments given in 1956-57, as against 113 in 1955-56. The past year also showed 71 Co⁶⁰ + B¹² studies, 3 Co⁶⁰ + B¹² with intrinsic factor, 1 FE⁵⁹ study and 522 conversion ratio studies.

The number of prescriptions filled was 192,154 in 1956-57 and 184,028 in 1955-56.

The Hospital Laboratory made 619,607 determinations during the year 1956-57, as against 545,907 in the previous year.

Physical Medicine and Rehabilitation Department

The third year of operation of the Rehabilitation Center and the Department of Physical Medicine and Rehabilitation in its new location in the Minnesota Medical Center has been a busy year with consolidation and intensification of the rehabilitation programs.

In 1956-57, 2,759 patients were treated, as compared to 2,812 patients last year. A total of 9,542 treatments was given in the course of 44,768 patient visits. A comparison of this past year with 1955-56 (and 1954-55) is shown in the table below.

	1956-57			1955-56			1954-55		
	OPD	IPD	Total	OPD	IPD	Total	OPD	IPD	Total
Patients	605	2154	2759	509	2303	2812	415	1612	2027
Patient Visits	7077	37691	44768	9312	39532	48844	6822	33018	39840
Treatments	21002	70540	91542	23057	66090	89147	14045	49620	63665
Physical Therapy	13371	34795	48166	17546	30822	48368			
Occupational therapy									
Rehabilitation	2159	13484	15643	1643	13272	14915	1174	8382	9556
Prevocational	1289	1340	2629	437	1339	1776	93	503	596
Special Services	8	19259	19267		18682	18682		19936	19936
Speech Therapy	2842	945	3787	1834	829	2663	723	339	1062
Vocational Counseling	1333	717	2050	1497	1146	2643	539	775	1314
Social Service			171						

Masonic Memorial Hospital

During the year 1956-57, ground was broken for the new Masonic Memorial Hospital, an 80-bed unit intended for long-term care principally in the field of cancer. This building was a gift of the Masons of the state of Minnesota, who have contributed one million dollars for its construction. A sum of \$202,000 is to be provided by the State Department of Health from Hill-Burton funds. The University of Minnesota provided the site. The building, which will be completed in about a year, will be connected by underground passageway with the University Hospitals main plant.

Child Psychiatry Unit

Remodeling of the sixth floor of the Child Psychiatry Unit provides facilities for twenty-four children. The unit was opened for use during the latter part of the year.

Remodeling and Alterations

The 1957 Legislature provided \$400,000 for the alteration of the Elliot wing of the Hospitals. This project is now in the hands of the architects, and the actual remodeling should start this year.

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APPENDIX

TABLE 1

UNIVERSITY OF MINNESOTA HOSPITALS

Statement of Income & Expenditures

June 30, 1957

INCOME

County & State Reimbursement	\$ 2,258,367.62	
Pay Bed	2,490,977.80	
Minnesota Hospital & Home for Crippled Children	65,000.00	
Psychopathic Hospital	469,966.00	
Child Psychiatry	160,000.00	
Rehabilitation	265,000.00	
Out-Patient Department	236,863.46	
Student Health Service	104,872.08	
Variety Club Heart Hospital	45,000.00	
University Funds	174,718.00	
Other Funds	50,356.82	
Multiple Sclerosis	15,000.00	\$ 6,336,121.78

EXPENDITURES

Salaries & Wages	\$ 3,957,374.40	
Supplies & Expense	2,379,781.42	6,337,155.82

OVERDRAFT

\$ 1,034.04

COST OF OPERATION

Year	Out-Patient Dept.	In-Patient Dept.	Out-Patient Visit	Hospital Day
1952-53	\$ 452,797.47	\$ 3,629,971.84	\$ 4.67	\$ 22.75
1953-54	489,676.01	3,803,470.24	4.84	24.36
1954-55	580,225.05	4,241,477.74	5.33	24.47
1955-56	672,898.91	5,304,848.95	5.78	28.18
1956-57	715,963.52	5,616,192.30	5.98	29.83

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TABLE 2
Comparative Twelve-Months Report
In-Patient Department

	1955-56	1956-57		1955-56	1956-57
Total Patients Admitted			Average Days Per Patient		
County (A)	4,089	4,114	County (A)	19.1	15.5
Pay & Per Diem (B,D,C)	7,467	8,295	Pay & Per Diem (B,D,C)	10.5	10.9
Student Health Service	1,393	1,361	Student Health Service	3.4	3.3
Psychiatry	269	261	Psychiatry	44.4	29.8
Psychiatry (Pay & Per Diem)	256	349	Psychiatry (Pay & Per Diem)	27.6	25.3
Child Psychiatry	85	62	Child Psychiatry	30.7	30.8
Child Psychiatry (Pay & Per Diem)			Child Psychiatry (Pay & Per Diem)	13.9	14.6
Free	88	62	Free	7.3	6.6
Eustis	218	248	Eustis	18.3	13.5
Variety Club Fund	154	195	Variety Club Fund	6.2	18.2
	9	6			
TOTALS	14,028	14,953	Average Length of Stay Per Patient	13.4	12.4
Total Patients Treated (Discharged)			Daily Average No. Patients		
County (A)	4,640	4,633	County (A)	212.9	196.4
Pay & Per Diem (B,D,C)	6,904	7,750	Pay & Per Diem (B,D,C)	213.9	230.6
Student Health Service	1,391	1,355	Student Health Service	12.8	12.2
Psychiatry	335	319	Psychiatry	32.7	26.1
Psychiatry (Pay & Per Diem)	208	318	Psychiatry (Pay & Per Diem)	19.3	22.0
Child Psychiatry	98	68	Child Psychiatry	7.1	5.7
Child Psychiatry (Pay & Per Diem)			Child Psychiatry (Pay & Per Diem)	3.4	2.4
Free	83	59	Free	4.3	4.5
Eustis	228	248	Eustis	7.7	7.5
Variety Club Fund	168	202	Variety Club Fund	.2	.6
	9	13			
TOTALS	14,064	14,965	Daily Average Census for Hospital	514.4	508.0
Total Days Hospital Care					
County (A)	77,944	71,707			
Pay & Per Diem (B,D,C)	78,293	84,155			
Student Health Service	4,695	4,455			
Psychiatry	11,944	9,509			
Psychiatry (Pay & Per Diem)	7,065	8,041			
Child Psychiatry	2,613	2,094			
Child Psychiatry (Pay & Per Diem)					
Free	1,250	863			
Eustis	1,611	1,644			
Variety Club Fund	2,813	2,729			
	56	237			
TOTALS	188,284	185,434			

TABLE 3 Comparison of Length of Stay in In-Patient Department

Service	1947-48	1948-49	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57
General Surgery	15	14	14	14	13	14	14.5	15.3	14	12.6
Urology	12	12	11	12	11	10	9.7	10.3	10.4	9.8
Orthopedics	22	28	24	27	25	25	23.5	20.6	18.5	18.3
Neurosurgery	12	13	12	11	11	15	11.7	14.3	14.3	13.6
Anesthesia									1.0	50.3
Physical Medicine								33.3	16.8	19.2
Medicine	18	17	18	21	21	17	15.5	15.7	16.3	16.9
Neurology	17	14	16	17	16	16	15	13.6	15.3	16.2
Dermatology	19	21	21	22	20	22	19.3	19.9	17.9	13.7
Psychiatry	32	29	26	34	30	34	34.3	46.8	36.2	27.4
Child Psychiatry						19	22.3	21.1	22.3	23.3
Ophthalmology	15	15	12	15	14	19	13.5	15.4	12.6	16.3
Otolaryngology	7	8	8	9	8	7	6	6.4	6.6	5
Gynecology	11	8	11	8	8	9	14.3	14.3	16.6	9.8
Obstetrics	12	11	10	9	8	7	6.3	6.6	6.3	6
Newborn Pediatrics	11	9	9	9	8	8	6.6	6.3	5.9	6.8
Pediatrics	16	14	14	16	18	17	16.8	15.8	15.8	14.3
Health Service	4	4	5	4	4	3	3.4	3.2	3.3	3.3
TOTALS	14	13.2	12.7	13	14	13	13.2	13.8	13.4	12.4

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TABLE 4
Comparative Twelve-Months Report
In-Patient Department

SERVICE	ADMISSIONS		PATIENT DAYS		AVG. LENGTH STAY	
	1955-56	1956-57	1955-56	1956-57	1955-56	1956-57
Surgery	1,854	1,936	25,998	26,491	14.0	12.6
Urology	835	814	8,660	8,160	10.4	9.8
Orthopedics	255	308	4,710	5,590	18.5	18.3
Neurosurgery	<u>488</u>	<u>547</u>	<u>6,951</u>	<u>7,113</u>	14.2	13.6
Totals	3,432	3,605	46,319	47,354		
Medicine	2,113	2,131	34,408	32,958	16.3	16.9
Dermatology	<u>142</u>	<u>121</u>	<u>2,548</u>	<u>1,603</u>	17.9	13.7
Totals	2,255	2,252	36,956	34,561		
Psychiatry	525	610	19,009	17,550	36.2	27.4
Neurology	543	552	8,284	8,645	15.3	16.2
Child Psychiatry	<u>173</u>	<u>124</u>	<u>3,863</u>	<u>2,957</u>	22.3	23.3
Totals	1,241	1,286	31,156	29,152		
Ophthalmology	168	174	2,112	2,941	12.6	16.3
Otolaryngology	<u>394</u>	<u>602</u>	<u>2,607</u>	<u>2,983</u>	6.6	5.0
Totals	562	776	4,719	5,924		
Gynecology	611	1,035	10,162	10,071	16.6	9.8
Obstetrics	955	953	6,033	5,757	6.3	6.0
Newborn Pediatrics	799	839	4,721	5,651	5.9	6.8
Pediatrics (General)	2,357	2,506	37,169	36,057	15.8	14.3
Health Service	1,444	1,410	4,810	4,617	3.3	3.3
Rehabilitation	372	284	6,239	5,938	16.8	19.2
Anesthesia		<u>7</u>		<u>352</u>		50.3
TOTALS	14,028	14,953	188,284	185,434		

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TABLE 5
Comparative Twelve-Months Report
Out-Patient Department

SERVICE	NEW PATIENTS		REVISITS		TOTALS	
	1955-56	1956-57	1955-56	1956-57	1955-56	1956-57
MEDICINE						
General	3,009	3,097	7,359	7,709	10,368	10,806
Allergy	63	119	942	1,027	1,005	1,146
Arthritis	96	167	1,929	1,470	2,025	1,637
Cardiac (Adult)	238	508	2,060	2,632	2,298	3,140
CMC (Combined Medical Clinic)	1	-	279	185	280	185
Chest	38	101	388	541	426	642
Diabetic	94	141	921	951	1,015	1,092
Gastro-intestinal	35	63	336	392	371	455
Hematology	52	55	900	829	952	884
Metabolism	94	98	995	951	1,089	1,049
DERMATOLOGY & SYPHILOLOGY						
	438	480	2,776	3,038	3,214	3,518
NEUROLOGY						
General	515	510	770	752	1,285	1,262
Convulsive Disorder	1	1	840	1,008	841	1,009
Multiple Sclerosis	21	20	189	232	210	252
Muscular Dystrophy	61	16	93	77	154	93
Parkinson			363	327	363	327
PSYCHIATRY						
	458	388	5,068	3,503	5,526	3,891
SURGERY						
General	715	655	4,228	3,915	4,943	4,570
Plastic	59	36	446	393	505	429
Proctology	358	292	1,510	1,052	1,868	1,344
Tumor	279	272	2,719	2,704	2,998	2,976
Orthopedic	341	397	1,588	1,652	1,929	2,049
Urology - Female	175	162	657	400	832	562
Urology - Tumor		12	5	64	5	76
Urology - Male	352	304	1,668	1,187	2,020	1,491
Urology - Tumor		22	25	224	25	246
Neurosurgery	110	89	539	500	649	589
EYE						
General	777	770	3,723	4,324	4,500	5,094
Refraction			904	847	904	847
Squint			228	308	228	308
EAR, NOSE AND THROAT						
Audiology	624	723	3,095	3,842	3,719	4,565
GYNECOLOGY						
General	455	481	1,437	1,575	1,892	2,056
Gynecology Tumor	60	37	1,467	1,666	1,527	1,703
Gynecology Proctology	2	5	41	440	43	445
OBSTETRICS						
Night Obstetrics	452	473	3,079	3,209	3,531	3,682
	1	-	188	300	189	300
PEDIATRICS						
General	1,131	1,181	3,857	4,271	4,988	5,452
Allergy	7	1	192	230	199	231
Cardiac	217	458	1,311	1,478	1,528	1,936
Convulsive Seizure	35	11	365	378	400	389
Endocrine	9	9	159	182	168	191
Child Psychiatry	194	591	776	878	970	1,469
Peds. Neurology	13	63	28	192	41	255
Peds. Renal		1		134		135
Peds. Hematology				31		31
		(more)				

THE MEDICAL BULLETIN

TABLE 5—(Continued)

SERVICE (cont'd)	NEW PATIENTS		REVISITS		TOTALS	
	1955-56	1956-57	1955-56	1956-57	1955-56	1956-57
PEDIATRICS (cont'd)						
Speech	25	27	145	155	170	182
Well Baby	11	6	261	382	272	388
EMERGENCY	2,791	2,944	13,699	15,360	16,490	18,304
NUTRITION	637	639	718	591	1,355	1,230
DENTAL	116	105	1,856	2,119	1,972	2,224
POLIO	3	0	60	0	63	0
NORTH	3,061	3,059	15,714	17,297	18,775	20,356
MISCELLANEOUS	653	0	2,883	0	3,536	0
VOCATIONAL REHABILITATION	315	395	501	918	816	1,313
TOTALS	19,623	20,377	96,746	99,306	116,369	119,683

TABLE 6
Comparative Twelve-Months Report
North Clinic

CLINIC ATTENDANCE	NEW PATIENTS		REVISITS		TOTALS	
	1955-56	1956-57	1955-56	1956-57	1955-56	1956-57
Medicine	534	514	2,504	2,991	3,038	3,505
Neurology	255	257	1,091	1,206	1,346	1,463
Dermatology	5	7	48	83	53	90
Surgery	358	371	3,704	3,524	4,062	3,895
Urology	203	137	1,037	651	1,240	788
Neurosurgery	315	304	661	664	976	968
Deep X-Ray	94	98	8	9	102	107
Orthopedics	62	43	278	312	340	355
Physical Medicine	61	65	50	105	111	170
Dental	1	4	2	3	3	7
Eye	3	6	55	49	58	55
Ear, Nose & Throat	379	473	461	663	840	1,136
Obstetrics	261	300	2,483	2,911	2,744	3,211
Gynecology	282	264	1,787	1,926	2,069	2,190
Pediatrics	220	166	1,332	1,426	1,552	1,592
Psychiatry (Child)	1	11	—	4	1	15
Psychiatry (Adult)	27	39	213	770	240	809
TOTALS	3,061	3,059	15,714	17,297	18,775	20,356

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TABLE 7

VARIETY CLUB HEART HOSPITAL

1957-58

OUT-PATIENT DEPARTMENT

Clinic Attendance:

Adult.....New.....	475	Old.....	2,183	Totals.....	2,658
Pediatrics..New.....	444	Old.....	1,197	Totals.....	1,641
Registration Fee	(Grand Total)	\$	2,627.75		
Laboratory Fee	" "		15,640.97		
Drugs	" "		424.20		
X-ray	" "		<u>5,354.25</u>		
		Total	\$ 24,047.17		

HEART HOSPITAL X-RAY DEPARTMENT

In-patient	4,473		
Out-patient	<u>1,916</u>	6,389 (x-rays)	
Total Patients	4,640		

HEART CATHETERIZATION LABORATORY

Procedure Number	Total.....	761
(Average Monthly)		63
	Total	\$ 27,171.00

LABORATORY PROCEDURE

Year	Total.....	21,390
Monthly	Total.....	1,782

IN-PATIENT SERVICE

Admissions (Stations 201 and 301)	1,464			
Transfers (IN)	188			
(OUT)	118			
Discharges	1,339			
Deaths	162			
		<u>Sta.201</u>	<u>Sta.301</u>	<u>Total</u>
Patient Days		11,206	11,466	22,672
Average Census		37	32	69
Per cent Occupancy		97%	77%	87%
Average Length of Stay		114	118	230

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TABLE 8
Comparative Twelve-Months Report
X-Ray

Parts Examined	1955-56	1956-57
Abdomen	3,234	2,269
Angiography (cerebral)	245	286
Angiocardiogram	127	139
Ankle and Foot	751	745
Aortogram	55	63
Arm, Forearm, Elbow	414	597
Arteriogram	30	141
Bronchogram	119	144
Breast	1,286	1,123
Chest	22,832	25,876
Cholangiogram	353	338
Cineroentgenogram	--	72
Colon	4,339	4,259
Encephalogram	258	278
Injection of Sims Tract	2	12
Facial Bones	290	294
Kymogram	--	61
Gall Bladder	721	696
Heart Catheterization	321	355
Heart	2,397	2,198
Hip Nailing	45	36
Hysterosalpingogram	31	39
Hepatogram	--	2
Pelvis and Hip Joints	2,490	2,543
Pancreatogram	6	4
Ribs and Sternum	209	170
Planigram	331	271
Placentogram	--	4
Pelvimetry	126	151
Pneumoperitoneogram	6	--
Shoulder Girdle	453	425
Sialogram	--	2
Sinuses, Paranasal and Mastoids	545	632
Skull, Orbits, Sella Turcica	2,557	2,396
Small Bowel	172	123
Spine (entire)	3,388	3,194
Spinogram	213	222
Stomach, Duodenum, Esophagus	5,444	5,543
Splenogram--Splenoportogram	--	3
Thigh, Leg, Knee	1,157	1,349
Tube Passing	21	23
Urinary Tract	926	825
Cystogram--Urethrogram	478	578
Urography, Excretion	1,646	1,682
Isolated Kidney	5	6
Urography, Retrograde	518	499
Venogram	25	19
Ventriculogram	45	81

(more)

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TABLE 8—(Continued)

Parts Examined	1955-56	1956-57
Venacavagram	--	6
Wrist and Hand	<u>692</u>	<u>843</u>
TOTAL RADIOGRAPHIC EXAMINATIONS	59,303	61,617
PHOTOFLUOROGRAPHY		
Employees	1,256	759
Admission Cases	<u>5,355</u>	<u>2,447</u>
	6,611	3,206
FLUOROSCOPY		
Diagnostic	<u>13,650</u>	<u>14,227</u>
TOTAL DEPARTMENTAL PROCEDURES	79,564	79,050
PATIENTS		
Cancer Detection Center	6,518	6,796
Hospital	18,022	18,943
Heart Hospital X-Ray	4,817	4,640
Out-Patient Department	12,461	12,828
Urology X-Ray	1,656 (5 mos)	1,773
Main Operating Room		2,635
Out-Patient X-Ray	1,359	567 (thru 12/56)
Student Health Service	1,151*	
Private	11,394*	
Employees	856*	
*Included in "Total Patients"		
TOTALS	<u>44,833</u>	<u>48,182</u>
RADIOGRAPHIC PROCEDURES		
Heart Hospital X-Ray	5,056	4,939
Urology X-Ray	2,049	2,193
Main Operating Room		2,899
Out-Patient X-Ray	1,761	729 (thru 12/56)
Main Department	50,437	50,857
TOTALS	<u>59,303</u>	<u>61,617</u>

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TABLE 9
Comparative Twelve-Months Report
X-Ray Therapy Department

TYPE OF TREATMENT	1955-56	1956-57
Deep X-Ray Treatments		
New Patients	646	600
Patients Retreated	<u>183</u>	<u>166</u>
Total Number of Patients Treated	829	766
Hennepin County Patients	89	82
Ramsey County Patients	37	30
Patients from Other Counties	<u>197</u>	<u>196</u>
Total County Patients	323	308
Out-Patient Treatments	7,074	7,200
House-Patient Treatments	<u>5,921</u>	<u>6,307</u>
Total Number of Treatments	12,995	13,507
Average Number of Treatments per Patient	15.7+	17.6+
No. Treatments on 250 Machine	4,154	3,426
No. Treatments on 400 Machine	3,051	3,089
No. Treatments on Canadian Cobalt Machine	5,790	6,287
No. Treatments on Picker Cobalt Machine		706
Superficial X-Ray Treatments		
120 KV		161
140 KV	199	
Out-Patient Treatments	931	925
House-Patient Treatments	<u>69</u>	<u>14</u>
Total Number of Treatments	1,000	939
Phillips Contact Therapy	113	77
Radium		
Total Number of Treatments	210	223
New Patients Treated	171	182
Strontium (Beta Ray)		
Total Number of Treatments	59	52
New Patients Treated	8	9
(more)		

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TABLE 9—(Continued)

TYPE OF TREATMENT	1955-56	1956-57
Isotope Laboratory		
Radiiodine		
Total Number Tracer Studies & Treatments	1,074	887
Number New Patients Given Tracer Study	765	631
Number Patients Given Repeat Tracer Study	216	173
Number Patients (New) Given Treatment	62	66
Number Patients Given Retreatment	31	17
Total Number Millicuries	980.81	785
Phosphorus		
Total Number Treatments	59	45
Number New Patients Given Treatment	30	20
Number Retreatments	21	25
Eye Tumor Diagnosis Studies	19	22
Total Number Millicuries Used for Treatment	173.75	150.45
Total Number Millicuries Used for Studies		10.75
Radioactive Gold		
Number of Patients Treated	10	1
Total Number of Millicuries	1,140	100
RIHSA Blood Volume Studies		
	71	19
Radioactive Chromium Red Cell and Survival Studies		
Blood Volume Studies	26	18
Survival Studies	15	23
Fe59 Studies	2	1
Cobalt 60 +B12 Studies		
Number of Studies	27	71
Cobalt 60 +B12 with Intrinsic Factor		
Number of Studies		3
Conversion Ratio Studies		
Number of Studies	496	522

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TABLE 10
Comparative Twelve-Months Report
Hospital Laboratories

Laboratory	Number of Determinations	
	1955-56	1956-57
Bacteriology	23,714	26,004
Blood Bank	100,568	186,624
Cancer Detection	23,737	25,162
Chemistry	70,277	65,551
Clerks	7,011	3,843
Dispensary	51,821	53,829
Electrocardiography & Basal Metabolism	9,623	9,207
Electroencephalography	1,370	1,579
Heart Catheterization (Heart Catheterizations)*	1,041 (321)	857 (365)
Heart Hospital	24,951	24,136
Hematology	97,609	94,407
Hematology (Special)	1,426	1,518
North Clinic	8,839	8,271
Parasitology	609	558
Serology	7,293	11,394
Tissues		
Specimens		
(Autopsy)*	(470)	(633)
(Surgical)*	(5,003)	(5,188)
Blocks		
Autopsy	8,789	15,776
Surgical	15,205	14,796
Cytology	212	217
Special Stains etc.	165	275
Urinalysis	76,704	75,603
TOTALS	530,964	619,607
* Not included in TOTALS		

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TABLE 11
Comparative Twelve-Months Report
Operating Rooms

Service	Major		Minor		Totals	
	1955-56	1956-57	1955-56	1956-57	1955-56	1956-57
DEPARTMENT OF SURGERY						
General Surgery	2,184	2,211	539	649	2,723	2,860
Neurosurgery	420	398	117	186	537	584
Urological Surgery	199	220	47	47	246	267
Orthopedics	244	309	271	161	515	470
Casts				121		121
DEPARTMENT OF GYNECOLOGY	203	244	209	255	412	499
DEPARTMENT OF EAR, NOSE & THROAT						
Otolaryngology	268	371	523	605	791	976
Dentistry	25	34	7	12	32	46
DEPARTMENT OF OPHTHALMOLOGY	223	235	79	88	302	323
TOTALS	<u>3,766</u>	<u>4,022</u>	<u>1,792</u>	<u>2,124</u>	<u>5,558</u>	<u>6,146</u>
CYSTOSCOPY DEPARTMENT						
TURS & Op. Proc.	411	342			411	342
Cystoscopies			1,324	1,533	1,324	1,533
Minor Non-Cystoscopies			770	941	770	941
X-Rays			722	960	722	960
TOTALS	<u>411</u>	<u>342</u>	<u>2,816</u>	<u>3,434</u>	<u>3,227</u>	<u>3,776</u>
COMBINED TOTALS	<u>4,177</u>	<u>4,364</u>	<u>4,608</u>	<u>5,558</u>	<u>8,785</u>	<u>9,922</u>
SUMMARY						
	<u>1955-56</u>	<u>1956-57</u>				
Majors	4,177	4,364				
Minors	<u>4,608</u>	<u>5,558</u>				
TOTALS	<u>8,785</u>	<u>9,922</u>				

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TABLE 12
Comparative Twelve-Months Report
Pharmacy

MONTH	OUT-PATIENT DEPARTMENT HEALTH SERVICE, HEART HOSPITAL RX		HOSPITAL RX (INCLUDING HEART HOSPITAL)		TOTAL RX	
	1955-56	1956-57	1955-56	1956-57	1955-56	1956-57
July	3,105	4,130	10,232	11,955	13,337	16,085
August	3,706	4,290	12,288	13,084	15,994	17,374
September	3,576	3,875	10,592	10,775	14,168	14,650
October	3,689	4,322	11,130	11,409	14,819	15,731
November	3,906	4,423	10,337	11,857	14,243	16,280
December	3,786	4,149	11,667	10,774	15,453	14,923
January	3,753	4,523	11,048	11,002	14,801	15,525
February	3,594	4,097	11,099	10,733	14,693	14,830
March	4,035	4,675	12,765	11,596	16,800	16,271
April	4,079	4,468	11,974	13,150	16,053	17,618
May	4,175	4,584	13,016	13,063	17,191	17,647
June	4,215	4,280	12,261	10,940	16,476	15,220
TOTALS	45,619	41,816	138,409	140,338	184,028	192,154

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TABLE 13
Comparative Twelve-Months Report
Physical Medicine & Rehabilitation

TREATMENT	OUT-PATIENT		IN-PATIENT		TOTALS	
	1955-56	1956-57	1955-56	1956-57	1955-56	1956-57
PHYSICAL THERAPY						
Diathermy	2,394	1,926	406	536	2,800	2,462
Electrical Stimulation	290	73	589	284	879	357
Hot Packs	878	533	978	1,146	1,856	1,679
Hubbard Tank	87	81	974	1,155	1,061	1,236
Massage	3,232	2,500	3,606	3,196	6,838	5,696
Paraffin	521	280	332	695	853	975
Radiant Heat	508	336	695	846	1,203	1,182
Therapeutic Exercises	8,161	6,610	19,534	23,794	27,695	30,404
Ultraviolet	238	122	2,425	1,934	2,663	2,056
Whirlpool	1,213	910	1,275	1,105	2,488	2,015
Miscellaneous	24	0	8	104	32	104
TOTALS	17,546	13,371	30,822	34,795	48,368	48,166
SPEECH THERAPY						
Evaluation	47	58	59	67	106	125
Training	1,787	2,784	770	878	2,557	3,662
TOTALS	1,834	2,842	829	945	2,663	3,787
OCCUPATIONAL THERAPY						
Rehabilitation	2,180	3,448	14,611	14,824	16,791	18,272
Functional	1,642	1,855	5,981	6,610	7,623	8,465
Prevocational	437	1,289	1,339	1,340	1,776	2,629
ADL Training	11	220	458	1,091	469	1,311
Diversional	90	84	6,833	5,783	6,923	5,867
Special Services Clinics	0	8	18,682	19,259	18,682	19,267
Pediatrics	0	8	5,468	5,574	5,468	5,582
Child Psychiatry	0	0	1,987	1,182	1,987	1,182
Adult Psychiatry	0	0	11,227	12,503	11,227	12,503
VOCATIONAL REHABILITATION						
Patient, Employer, Agency Contacts	1,497	1,333	1,146	717	2,643	2,050
TOTAL TREATMENTS FOR DEPARTMENT	23,057	21,002	66,090	70,540	89,117	91,542
(more)						

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TABLE 13—(Continued)

	OUT-PATIENT		IN-PATIENT		TOTALS	
	1955-56	1956-57	1955-56	1956-57	1955-56	1956-57
Patients	509	605	2,303	2,154	2,812	2,759
Patient Visits	9,312	7,077	39,532	37,691	48,844	44,768
Treatments	23,057	21,002	66,090	70,540	89,147	91,542
Physical Therapy	17,546	13,371	30,822	34,795	48,368	48,166
Occupational Therapy						
Rehabilitation	1,643	2,159	13,272	13,484	14,915	15,643
Prevocational	437	1,289	1,339	1,340	1,776	2,629
Special Services		8	18,682	19,259	18,682	19,267
Speech Therapy	1,834	2,842	829	945	2,663	3,787
Vocational Counseling	1,497	1,333	1,146	717	2,643	2,050
Social Service		46		125		171

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TABLE 14
Waiting List as of July 1

SERVICE	1952-53	1953-54	1954-55	1955-56	1956-57
Male Surgery	14	21	7	0	2
Female Surgery	18	15	13	5	9
Neurosurgery	6	5	0	0	3
Plastic Surgery	0	1	0	7	13
Urelogy	5	10	22	8	7
Orthopedics (Pediatrics)	2	5	1	4	5
Plastic Surgery (Pediatrics)	1	1	1	6	5
Surgery (Pediatrics)	0	0	0	0	0
Urology (Pediatrics)	0	0	0	2	1
Orthopedics	23	24	23	5	15
Medicine	4	3	1	0	0
Medicine (Pediatrics)	1	0	0	0	1
Neurology	32	11	52	41	46
Neurology (Pediatrics)	0	0	0	0	0
Psychiatry (Adult)	21	13	19	2	8
Psychiatry (Pediatrics)	14	11	7	5	13
Dermatology	6	7	0	0	0
Ophthalmology	0	0	0	0	0
Ophthalmology (Pediatrics)	2	2	0	0	0
Physical Medicine (Adult)	2	3	6	7	2
TOTALS	151	132	152	92	130

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TABLE 15

SOCIAL SERVICE DEPARTMENT
 Statistical Report
 7-1-56 - 7-1-57

1. Total Number of Cases under Care during Year (MSW and PSW)		<u>8,474</u>
2. Added to Caseload during Year		3,892
a. New	2,320	
b. Old	572	
c. Recurrent	702	
d. Transfer from MSW	275	
e. Transfer from PSW	23	
3. Subtracted from Caseload during Year		4,059
a. Transfer to MSW	298	
b. Transfer to PSW	47	
c. Closed	3,714	
4. Number of Cases in which Action Completed during Year		1,181
5. Joint Cases	103	
a. MSW	6	
b. PSW	97	
6. Miscellaneous Cases		<u>2,462</u>
7. Grand Total		10,936

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TABLE 16

UNIVERSITY OF MINNESOTA HOSPITALS	
NUTRITION DEPARTMENT	
1956-1957	
Patient Meals Served	557,172
Cafeteria Meals Served	287,176
Staff Luncheon Meals Served	<u>6,672</u>
	851,020
Modified Diets Served	180,885
32 $\frac{1}{2}$ % of total patient meals	
2 $\frac{1}{2}$ % more than last year	
Formulas prepared	15,822 (increase of 478)
Purees bottled	22,471
Supplementary feedings	11,327
Total Raw Food Cost	\$ 299,266.73
64.3% for patients	
35.7% for cafeteria	
Average Cost per Patient Meal	.342
Average Cost per Cafeteria Meal	.363

ITEM	ANNUAL TOTALS	MONTHLY AVERAGES	ANNUAL PERCENTAGES
Raw Food Cost			
Patients	\$ 192,529.31	\$ 16,135.72	64.3
Cafeteria	106,737.42	8,894.77	35.7
	<u> </u>	<u> </u>	<u> </u>
TOTALS	\$ 299,266.73	\$ 25,030.49	100.0
Meals Served			
Patients	557,172	46,431	65.4
Cafeteria	287,176	23,931	33.7
Staff Luncheons	6,672	496	0.9
	<u> </u>	<u> </u>	<u> </u>
TOTALS	851,020	70,858	100.0
	<u>RAW FOOD COST</u>	<u>RAW FOOD COST</u>	<u>RAW FOOD PERCENTAGE</u>
	<u>Per Year</u>	<u>Per Month</u>	
Patients			
Staples	\$ 8,408.57	\$ 700.71	2.9
General Diets	98,914.32	8,326.19	33.1
Special Diet Laboratory	63,714.75	5,309.56	21.3
Milk Laboratory	4,479.72	373.31	1.5
Floor Orders	14,636.48	1,219.71	3.9
Parties-Adult Psy., Rehab.	739.54	61.63	.2
Parties-Child Psy.	202.76	16.84	.6
Metabolic	705.66	67.14	.5
Others	727.51	60.63	.3
	<u> </u>	<u> </u>	<u> </u>
TOTALS	\$ 192,529.31	\$ 16,135.72	64.3
Cafeteria			
Nurses-Interns	\$ 100,112.76	\$ 8,342.72	33.5
Operating Room Nourishment	3,910.51	325.87	1.3
Staff Luncheon	2,714.15	226.18	.9
	<u> </u>	<u> </u>	<u> </u>
TOTALS	\$ 106,737.42	\$ 8,894.77	35.7
GRAND TOTALS	\$ 299,266.73	\$ 25,030.49	100.0
Patients per day	1.035		
Patients per meal	.342		
Cafeteria per day	1.092		
Cafeteria per meal	.363		
(more)			

TABLE 17--(Continued)

ITEM (cont'd)	PER YEAR	PER MONTH	PERCENTAGE
Raw Foods			
Meat, Cheese, Eggs	\$ 100,348.11	\$ 8,562.03	34.0
Canned Goods	67,906.37	5,559.78	22.2
Milk and Cream	62,943.02	5,245.25	20.9
Fat and Oil	17,146.63	1,428.88	5.7
Miscellaneous	50,922.60	4,243.55	17.2
GRAND TOTALS	\$ 299,266.73	\$ 25,030.49	100.0

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TABLE 18
MEDICAL RECORD DEPARTMENT

Chart Service

Comparative figures for services rendered by the Medical Record Department during the past two years are shown in the following table:

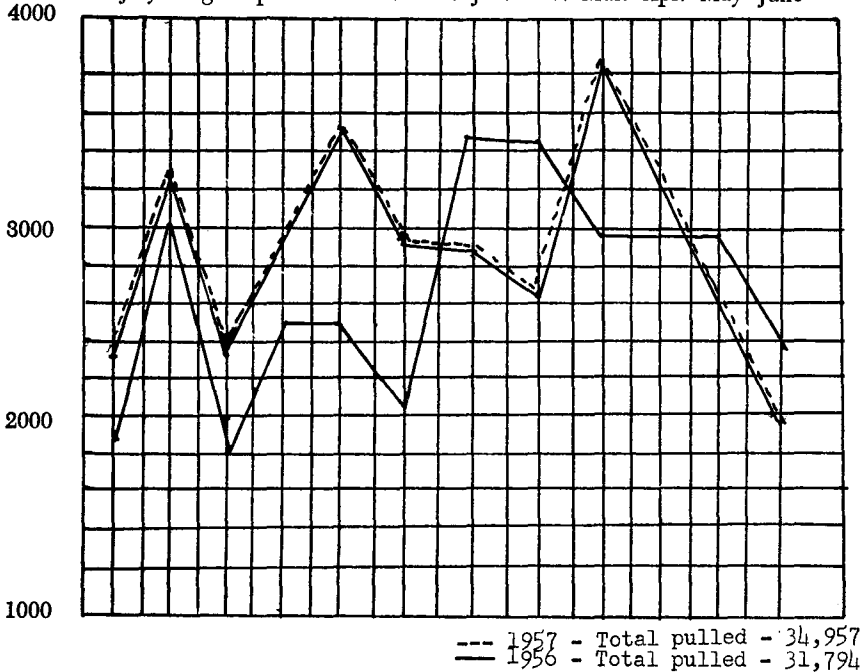
	1955-1956	1956-1957
Insurance reports completed	6,408	6,653
Number of charts pulled for studies and follow-up	31,794	34,957
OPD charts pulled including clinic visits and fails	126,813	130,083
Charts pulled for Hospital Admissions	14,028	14,947

Research Projects:

The 34,957 charts pulled for studies and follow-up this past year represents 48 completed studies, 14 temporary discontinued, 11 reactivated, and 13 long term studies, totaling 86 separate studies.

The following graph illustrates the comparative number of charts pulled per month for studies and follow-up during the past two years.

July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June



Editorial

Minnesota Statehood Centennial Year

One hundred years ago Minnesota was admitted to statehood, and therefore this year, 1958, is an occasion to reflect upon our state's contributions to the progress and welfare of our great nation and our peoples. Minnesota's agricultural, mining, forestry, milling, and industrial achievements will receive much deserved recognition.

Medical education and advances in medical science are among the outstanding contributions that have brought our Minnesota physicians and scientists into the national and international spotlight. Patients from the world over come to Minnesota for highly specialized medical care. Our physicians and scientists in the health fields circle the globe lecturing about the most advanced medical care as developed in our state through basic and clinical research. It should, indeed, be gratifying and reassuring to our citizens to live in the midst of such a progressive, dedicated medical profession.

Moreover, during 1958 Minneapolis will be the scene of national and international medical meetings. The Eleventh Annual Assembly of the World Health Organization will meet from May 26 through June 14. Except in 1949 and 1955, when the Assembly met in Rome and Mexico City, the annual meetings have been in Geneva, Switzerland. It is a tribute to Minnesota's reputation in the health fields that the 1958 meeting will be held in our State.

The World Health Organization is the directing and coordinating authority on international health work. Its Constitution affirms that health is "one of the fundamental rights of every human being, without distinction of race, religion, political belief, economic or social condition," and it recognizes that "the health of all peoples is fundamental to the attainment of peace and security." The organization, in its first ten years, has functioned with significant success in contributing to improved health throughout the world, and thus to international understanding and good will.

The agenda of the Assembly, whose delegates will come from 85 member nations, will concern legislative matters determining the international health policies and programs that will aid countries to strengthen and improve their own health services. Major problems that have been given top priority in these discussions are malaria, trachoma, leprosy, maternal and child health, tuberculosis, venereal diseases, environmental sanitation, and nutrition.

THE MEDICAL BULLETIN

On December 2, 1958, Minneapolis will be host to another health group, as the Clinical Meeting of the American Medical Association convenes here for a four-day assembly. This will be the first time the American Medical Association has met in Minnesota since 1927. The scientific program will offer papers, symposia, panels, televised views of surgery and clinics, and motion pictures of medical significance to the general physicians in our country. Participants will represent many sections of the United States, and approximately four thousand physicians will attend the meeting.

These meetings will bring many delegates and physicians from all parts of our nation and of the world to Minnesota, all of them eager to learn more about Minnesota's contributions to the health fields.



Medical School Activities

Faculty News

DR. LEONARD M. SCHUMAN, Associate professor of Epidemiology, School of Public Health, presented an Institute on Epidemiology to selected professional public health workers at the Communicable Disease Center, U.S. Public Health Service, Atlanta, Georgia, during the week of January 13. As special consultant to the Center, Dr. Schuman has conducted similar Institutes throughout the United States in the past two years.

DR. DAVID GLICK, Professor, Physiological Chemistry, and Director, Histochemistry Laboratory, presented a lecture on "Applicability of Quantitative Histochemical Techniques to Tissue Culture Studies" on July 23, 1957 at the University of Colorado Medical Center, Denver, by invitation of the Tissue Culture Association.

DR. WALLACE D. ARMSTRONG, Professor and Head of the Department of Physiological Chemistry, attended the Philadelphia American Medical Association meeting on December 4 to make a presentation before a reference committee of the House of Delegates on safety of fluoridation of public water supplies.

A scientific exhibit prepared by DR. ROBERT W. GOLTZ, Clinical Instructor, DR. RAMON M. FUSARO, Instructor, and MR. JAMES JARVIS, B.S., Division of Dermatology, entitled, "Histochemical Studies of Some Epidermal and Appendageal Tumors" was given the Bronze Award at the December meeting of the American Academy of Dermatology and Syphilology.

DR. JOHN J. BITTNER, Professor and Director, Division of Cancer Biology, has been invited to present a paper at the symposium on "Viruses and Cancer" at the Seventh International Cancer Congress in London, July 10, 1958.

DR. FRANZ HALBERG, Associate Professor, Division of Cancer Biology, has been elected to fellowship by the New York Academy of Sciences for his outstanding work toward the advancement of science.

DR. PAUL D. BOYER, Hill Professor of Physiological Chemistry, attended the International Symposium on Enzyme Chemistry in Japan, October 15 to 23, 1957, and presented a paper entitled, "On the Nature of the Oxidative Phosphorylation Process." At the fall meeting of the National Academy of Sciences, Dr. Boyer presented a paper, "Tracing of the In-vivo Path from Amino Acid to Protein."

Faculty Publications

ANDERSON, D. M.: Hematuria. Bull. St. Louis Park Med. Center 1:110, 1957.

BOYNTON, RUTH E., COWAN, D. W., and RUPPRECHT, PAUL: Immunization of College Students Against Diphtheria. J.A.M.A. 164: 1874, 1957.

BRADLEY, S. G.: Heterokaryosis in *Streptomyces Coelicolor*. J. Bact. 73:581, 1957.

BRADLEY, S. G.: Distribution of Lysogenic *Streptomyces*. Science 126:558, 1957.

CREMER, N., and WATSON, D. W.: Influence of Stress on Distribution of Endotoxin RES Determined by Fluorescein Antibody Technic. Proc. Soc. Exp. Biol. Med. 95:510, 1957.

FANSLER, W. A.: Proctoscopy and Proctologic Office Procedures. GP 15:101, 1957.

FERGUSON, R. B., and LICHSTEIN, H. C.: Biotin Requirements of a Mutant Strain of *Escherichia coli*. Proc. Soc. Exp. Biol. Med. 95: 766, 1957.

FIELD, M. F., and LICHSTEIN, H. C.: Factors Affecting the Growth of Propionibacteria. J. Bact. 73:96, 1957.

FISCHER, R. G., and SYVERTON, J. T.: Distribution of Coxsackie Virus in Experimentally Infected Cockroaches, *Periplaneta americana*. Proc. Soc. Exp. Biol. Med. 95:284, 1957.

GIFFORD, G. E., and SYVERTON, J. T.: Replication of Poliovirus in Primate Cells Maintained Under Anaerobic Conditions. Fed. Proc. 16:414, 1957.

HILDING, A. C.: Possible Relation of the Manner of Deposition and Disposition of Cigarette Smoke in the Bronchial Tree to Carcinoma. Acta Oto-Laryngologica 48:26, 1957.

HILDING, A. C.: Ciliary Streaming in the Bronchial Tree and the Time Element in Carcinogenesis. New England J. Med. 256:634, 1957.

KENNEDY, D. R., HAMILTON, T. R., and SYVERTON, J. T.: Effects on Monkeys of Introduction of Hemolytic Streptococci into Root Canals. J. Dental Res. 36:496, 1957.

LABREE, JOHN W.: Results of Mitral Commissurotomy with Reference to Selection of Patients for Surgery. Bull. St. Louis Park Med. Center 1:122, 1957.

Coming Events

- January 30—
February 1 Continuation Course in Emergency Surgery for General Physicians
- February 6-8 Continuation Course in Cardiovascular Diseases for General Physicians
- February 7 CLARENCE M. JACKSON LECTURE: *Physiology of Congestive Heart Failure*; DR. EUGENE A. STEAD, JR., Professor of Medicine and Chairman, Department of Medicine, Duke University Medical Center, Durham, North Carolina; Mayo Memorial Auditorium; 8:00 A.M.
- February 10-15 Continuation Course in Neurology for General Physicians
- February 13 J. B. JOHNSTON LECTURE: *Complexities of Neural Interaction Revealed in Studies of Slow Potential Phenomena*; DR. JAMES L. O'LEARY, Professor of Neurology, Washington University School of Medicine, St. Louis, Missouri; Mayo Memorial Auditorium; 8:00 A.M.
- March 3-5 Continuation Course in Pediatrics for General Physicians
- March 17-19 Continuation Course in Internal Medicine for Internists
- March 18 GEORGE E. FAHR LECTURE: *Pulmonary Hypertension*; DR. PAUL WOOD, Institute of Cardiology, London, England; Mayo Memorial Auditorium; 8:00 A.M.
- March 20-22 Continuation Course in Surgery for Surgeons

WEEKLY CONFERENCES OF GENERAL INTEREST

Physicians Welcome

- Monday, 9:00 to 10:50 A.M. OBSTETRICS AND GYNECOLOGY
Old Nursery, Station 57
University Hospitals
- 12:30 to 1:30 P.M. PHYSIOLOGY-
PHYSIOLOGICAL CHEMISTRY
214 Millard Hall
- 4:00 to 6:00 P.M. ANESTHESIOLOGY
Classroom 100
Mayo Memorial
- Tuesday, 12:30 to 1:20 P.M. PATHOLOGY
104 Jackson Hall
- Thursday, 11:30 A.M. to 12:30 P.M. TUMOR
Todd Amphitheater
University Hospitals
- Friday, 7:45 to 9:00 A.M. PEDIATRICS
McQuarrie Pediatric Library,
1450 Mayo Memorial
- 8:00 to 10:00 A.M. NEUROLOGY
Station 50, University Hospitals
- 9:00 to 10:00 A.M. MEDICINE
Todd Amphitheater,
University Hospitals
- 1:30 to 2:30 P.M. DERMATOLOGY
Eustis Amphitheater
University Hospitals
- Saturday, 7:45 to 9:00 A.M. ORTHOPEDICS
Powell Hall Amphitheater
- 9:15 to 11:30 A.M. SURGERY
Todd Amphitheater,
University Hospitals

For detailed information concerning all conferences, seminars, and ward rounds at University Hospitals, Ancker Hospital, Minneapolis General Hospitals, and the Minneapolis Veterans Administration Hospital, write to the Editor of the BULLETIN, 1342 Mayo Memorial, University of Minnesota, Minneapolis 14, Minnesota.