Research in the Department of Pathology, Washington University School of Medicine, 1910 - 1940

ROBERT A. MOORE*

With the reorganization of the Washington University School of Medicine under the genius of Mr. Brookings between 1910 and 1914, many professors and instructors with an interest in basic research were brought to St. Louis. Among these new professors was Eugene L. Opie, a student of William Henry Welch at Johns Hopkins and a former member of the Rockefeller Institute for Medical Research. During the preceding decade Dr. Opie had interested himself in two problems; how the animal organism defends itself against bacteria, and the effect of certain poisonous substances on the liver. In St. Louis the studies on bacteria were increasingly focused on the one bacterium which causes tuberculosis. It had been known since the discovery of the tubercle bacillus that tuberculosis in children and in adults was different both in the clinical features and in the changes which occurred in the lungs. It was also known, largely as the result of the work of Ghon and Hamburger in Vienna, that the children who died of tuberculosis represented only a small percentage of the children who contracted the disease. In most children, tuber-

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1. It should not be assumed because this discussion begins with events in 1910, that the Department of Pathology before that date was not an active group. It is hoped that in some future issue of the Alumni Bulletin a similar report can be made for the period before 1910. Contributions of facts, figures, side-lights and names will be appreciated.
culation gives no evident change in health and heals as a small calcified nodule in the lung and draining lymph node. The studies in the Department of Pathology from 1912 to 1923 were concentrated on a proper elucidation and correlation of these facts. Briefly stated, the conclusions were, that the minimal tuberculosis acquired during childhood changes the reaction of the body and influences the character of the tuberculosis which occurs during young adult life. The more important results were summarized in the following papers: Widespread tuberculous infection of healthy individuals and its significance, Bulletin of the New York Tuberculosis Association, Vol. 5, Nos. 1 and 2, January and April, 1924; Pathological evidence of first infection in association with active pulmonary tuberculosis, American Review of Tuberculosis, Vol. 10, p. 249, 1924; The pathogenesis and transmission of Tuberculosis, Harvey Lectures, 1928-1929.

These basic studies carried out in St. Louis logically led to an attempt to vaccinate against tuberculosis, first in animals and later in man. Dr. Opie from 1923 to 1932 at the Henry Phipps Institute of the University of Pennsylvania and later at Cornell University Medical College has pursued this line of thought under known experimental conditions, (An experimental study of protective inoculation with heat killed tubercle bacilli, Journal of Experimental Medicine, Vol. 66, p. 761, 1937) and in human beings (Protective inoculation against human tuberculosis with heat killed tubercle bacilli, American Journal of Hygiene, Vol. 29, p. 155, 1939). The results are encouraging but not as yet conclusive.

Although the interests of the department were centered on the relation of allergy to tuberculosis, the general phenomena of inflammation were not overlooked. A general review of the subject of inflammation (Inflammation and immunity, Journal of Immunology, Vol. 17, p. 320, 1929; Inflammation, Archives of Internal Medicine, Vol. 5, p. 541, 1910) and a review of the action of intracellular enzymes (Intracellular digestion. The enzymes and antienzymes concerned, Physiological Reviews, Vol. 2, p. 552, 1922) stand in 1941 as excellent contributions. An investigation on the Arthus phenomenon is classic (Inflammatory reaction of the immune animal to antigen (Arthus phenomenon) and its relation to antibodies, Journal of Im-
munology, Vol. 9, p. 231, 1924). This study showed that the Arthus phenomenon is an inflammation which results from the union of antigen and antibody in the tissue. If a rabbit is injected subcutaneously with a foreign protein, there is little or no reaction. But, if the injections are continued at weekly intervals, the fifth or sixth injection results in a violent necrotizing inflammation. The continued injections stimulate the formation of precipitins against the foreign protein and when they reach a high level, another injection of the protein unites with the precipitin in the serum and produces a local inflammation. The tremendous significance of this observation is best illustrated by a quotation from the original paper by Dr. Opie. “The increased local susceptibility of the immunized animal is an evident paradox. The local fixation of antigen removes this contradiction, for at the expense of a heightened inflammatory reaction, resulting perhaps in local death of tissue, that is, the Arthus phenomenon, the action of the injurious agent is limited to its portal of entry, and the organism as a whole is protected. It is unnecessary to assume that the tissues of the immunized animal are more sensitive than those of the normal animal to the action of the antigen, for in both the normal and the immune animal the same inflammatory reaction occurs when antigen and antibody meet within the tissue.”

The studies of the Department on diseases of the liver were largely concerned with methods by which the liver could be protected from injurious substances and poisons. (Influence of diet on the toxicity of substances which produce lesions of the liver and the kidney, Journal of the American Medical Association, Vol. 63, p. 136, 1914). Although other laboratories made important contributions in this same field, Washington University may well be proud of the part played by the members of its staff. The conclusion that the feeding or injection of large amounts of sugar to patients with diseases of the liver materially protects the liver from additional damage has undoubtedly had an influence on the practice of surgery. All of this work is well summarized in: Pathologic physiology of the liver in relation to intoxication and infection, Journal of the American Medical Association, Vol. 85, p. 1533, 1925.
During the world war several members of the Department served in the Army Medical Corps both in this country and in England and in France. Influenza occupied the greater part of their attention and the observations are reviewed in: The pathologic anatomy of influenza based chiefly on American and British sources, Archives of Pathology and Laboratory Medicine, Vol. 5, p. 285, 1928. The greater part of the investigations were summarized in a book published by the C. V. Mosby Company entitled: Epidemic Respiratory disease. The pneumonia and other infections of the respiratory tract accompanying influenza and measles.

For a brief period after the war, members of the Department made important contributions on the cultivation of cells outside the body (The study of problems of immunity by the tissue culture method, Journal of Immunology, Vol. 3, p. 219, 1918) and on the way in which certain cells in the body destroy bacteria and particulate matter (Identification of three types of mononuclear phagocytes in the peripheral blood, Archives of Internal Medicine, Vol. 36, p. 799, 1925).

Shortly after the reorganization of the Medical School in 1910, the Barnard Free Skin and Cancer Hospital brought the internationally famous scientist, Dr. Leo Loeb, to that hospital as Pathologist. In 1913, Washington University appointed Dr. Loeb, Professor of Comparative Pathology. On the departure of Dr. Opie, Dr. Loeb in 1924, was appointed Professor of Pathology and held that position until his retirement in 1937. Under the stimulus and guidance of Dr. Loeb, the members of the Department made important contributions in studies of the ductless glands especially the sex glands, the thyroid and the pituitary and in investigations on the transplantation and regeneration of tissues. All of these investigations were directed toward a solution of the nature of cancer.

As early as 1916, it was found that the removal of the ovaries in early life in a strain of mice which usually developed cancer of the breast at a later age, would prevent this disease (Further investigations on the origin of tumors in mice, III. On the part played by internal secretions in the spontaneous development of tumors, the Journal of Cancer Research, Vol. 1, p. 1, 1916; VI. Internal Secretions as a factor in the origin of tumors, Journal of Medical Research, Vol. 40, p. 477, 1919;
and, Internal secretions as a factor in the origin of cancer, Canadian Medical Association Journal, Vol. 35, p. 117, 1936). This was the first clear demonstration that the ductless glands influenced the development of cancer and has formed the basis for an immense number of studies throughout the world in the succeeding quarter of a century.

Naturally, this fundamental observation was not possible without the aid of more basic studies. Beginning with the transplantation of pigmented skin (Ueber Transplantation von weisser Haut auf einen Defekt in schwarzer Haut and umgekehrt, Archiv, für Entwicklungs-Mekanismus, Vol. 6, 1897) and progressing through the use of cultures of cells (Growth of tissues in culture media and its significance for the analysis of growth phenomena; The Anatomical Record, Vol. 6, p. 109, 1912) and the healing of wounds (A comparative study of the mechanism of wound healing, Journal of Medical Research, Vol. 41, p. 247, 1920) the investigations led to the transplantation of cancer (Variations of the percentage of takes and the growth energy of transplanted tumor, Zeitschrift für Krebsforschung, Vol. 14, p. 1, 1914).

The discovery that cancer in animals may be transplanted from one animal to another placed at the disposal of the oncologist a new method to approach the cancer problem. Dr. Loeb and his associates immediately used this method to study the influence of heredity (Untersuchungen über die Vererbung der das Tumorwachstum bestimmenden Faktoren, Centralblatt für Bakteriologie, Parasitenkunde und Infektionskrankheiten, Vol. 67, p. 135, 1912). It was found that heredity was also a factor in the origin of cancer as well as in whether or not it could be transplanted. (The incidence of cancer in various strains of mice, Proceedings of Society for Experimental Biology and Medicine, Vol. 11, p. 34, 1913; Further investigations on the origin of tumores in mice. V The tumor rate in hybrid strains, Journal of Experimental Medicine, Vol. 28, p. 475, 1918; Inheritance of Cancer in Mice, the American Naturalist, Vol. 55, p. 510, 1921.)

The finding of certain strains of mice, of which a large number developed spontaneous cancer, led to investigations of other factors which might influence the incidence and character of the tumors. The effect of pregnancy (The influence of

The facts established by the investigations of cancer and transplantation led to even broader concepts regarding a fundamental property of living matter. This property is that, cells are able to distinguish between closely and remotely related cells in the same way that one individual possesses and recognizes a difference from other individuals. (Transplantation and individuality, Biological Bulletin, Vol. 40, p. 143, 1921; Transplantation and potential immortality of mammalian tissues, Journal of General Physiology, Vol. 8, p. 417, 1926.)

During the same period when these early studies on growth and cancer were underway, a beginning was being made in the related field of the ductless glands. It was found that the ovaries show a regular cyclic change, analogous to menstruation in women (The cyclic changes in mammalian ovary, Proceedings of the American Philosophical Society, Vol. 50, p. 228, 1911; The correlation between the cyclic changes in the uterus and the ovaries in the guinea pig, Biological Bulletin, Vol. 27, p. 1, 1914). Similarly the breast was studied. (The cyclic changes in the mammary gland under normal and pathological conditions, I. The changes in the non-pregnant guinea pig, Journal of Experimental Medicine, Vol. 25, p. 285, 1917, and II. The changes in the pregnant guinea pig, the effect of lutein injections and the correlation between the cycle of the uterus and ovaries and the cycle of the mammary gland, Journal of Experimental Medicine, Vol. 25, p. 305, 1917). Although it is difficult to determine the effect of carefully established scientific fact on subsequent work, there seems little doubt that these fundamental studies by Dr. Loeb and his associates made a significant contribution to the tremendous progress in Endocrinology that followed in the nineteen twenties.
At about this time the attention of the Department turned from the sex glands and their influence on other structures, to other endocrine glands—the thyroid and the pituitary. The investigations were focused on what factors produce enlargement of the thyroid (Studies on compensatory hypertrophy of the thyroid gland. I. A quantitative analysis of compensatory hypertrophy of the thyroid gland, Journal of Medical Research, Vol. 40, p. 199, 1919). In the succeeding two decades the Department has made important contributions to the present concept that the pituitary gland through its hormones controls most of the other ductless glands. (The thyroid stimulating hormone of the anterior pituitary gland, Annals of Internal Medicine, Vol. 9, p. 13, 1935).

Since 1933, increasing attention has been given by the staff of the department to diseases due to viruses. The cause of the epidemic of encephalitis in St. Louis in 1933, a virus, was first isolated in the laboratories of the Department of Pathology (Encephalitis: Studies on experimental transmission, Public Health Reports, Vol. 48, p. 1341, 1933; The pathological changes in acute encephalitis in St. Louis epidemic during summer of 1933, American Journal of Public Health, Vol. 23, p. 1148, 1933; The pathologic changes of the St. Louis type of acute encephalitis, Journal of the American Medical Association, Vol. 103, p. 822, 1934) There is increasing evidence that some diseases are due to the combined action of a virus and a bacterium. Several studies in the Department have contributed to this concept. (Further evidence of the virus nature of interstitial bronchopneumonia, Proceedings of the Society of Experiment Biology and Medicine, Vol. 30, p. 508, 1933). A virus found in the salivary glands of man, guinea pigs, mice and other animals has also been studied. This virus rarely produces any detectable disease and for that reason deserves further investigation. (The visceral lesions produced in mice by the salivary gland virus of mice, Journal of Experimental Medicine, Vol. 63, p. 303, 1936.)

With the retirement of Dr. Loeb from the professorship in 1938, Dr. Howard A. CcCordock was appointed to the chair of Pathology. Dr. McCordock had for many years been interested in tuberculosis and while still in Baltimore with Rich published one of the most important contributions to this sub-
ject. (An enquiry concerning the role of allergy, immunity and other factors of importance in the pathogenesis of human tuberculosis, Bulletin Johns Hopkins Hospital, Vol. 44, p. 273, 1929.) At Washington University these investigations were continued together with other studies on St. Louis encephalitis, viral pneumonia and the salivary gland virus (reference quoted above).

Aside from these correlated studies throughout the 25 years since the opening of the new buildings of the Washington University School of Medicine, a few isolated contributions by the Department are worthy of note. The earliest observations of botryomycosis in man were reported from St. Louis (Human botryomycosis, Archives of Internal Medicine, Vol. 11, p. 425, 1913). In 1926 the first well studied example of an increase in the size of the islands of Langerhans in an infant born of a diabetic mother was investigated (Compensatory hypertrophy and hyperplasia of the islands of Langerhans in the pancreas of a child born of a diabetic mother, Arch. Path., Vol. 1, p. 348, 1926). Some of the early cases of a tumor of islands of Langerhans were observed in this laboratory (Tumors of the islands of Langerhans and hypoglycemia, American Journal of Pathology, Vol. 7, p. 723, 1931). More recently a peculiar case of tularemia has been studied in which it is possible that the disease was contracted through food. This is in sharp contrast with the usual mode of infection through a cut on the hand or through the eye. (Tularemia in an infant with extensive intestinal lesions, Archives of Pathology, Vol. 26, p. 1052, 1938). For several years all cases in the laboratory have been examined for trichina. This study, now encompassing more than 1000 observations has shown that about 15% of all people in St. Louis have once been infected with this parasite. (Present incidence of Trichinella spiralis in man as determined by a study of 1060 unselected autopsies in St. Louis hospitals, American Journal of Medical Sciences, Vol. 197, p. 47, 1939). The explanation and significance of this finding must await future investigation.

A review of the past only serves to point to the paths which lead to the future. What are the general plans for the Department of Pathology for the next 5 or 10 or 25 years? With the changing distribution of the various age groups in the popula-
tion, increasing attention must be given to the diseases of older people; cancer, arteriosclerosis, cerebral hemorrhage, hypertension and diabetes. The new developments in the chemistry of the hormones, vitamins and viruses render this a profitable field for study by cooperative effort between the pathologist and chemist. The concepts of individuality lead to a study of the effect of the physical make-up of man on the incidence of disease. Do only heavy-set swarthy individuals develop this disease and thin fair-skinned people that disease? The increasing attention given to psychiatry demands that the medical scientist focus his activities on an elucidation of the physiological, chemical and morphological changes in mental disease.

At the present time the Department is organized with four senior members, each of whom has a separate and independent research program. These are: diseases of the ductless glands and of organs under the influence of hormones; infectious diseases; tumors; and diseases of the nervous system.

**PROFESSORS**

Eugene L. Opie ..........1910-1923  
Leo Loeb ..................1924-1938  
Howard A. McCordock ....1938-1939

**ASSOCIATE PROFESSORS**

George M. Smith ..........1911-1915  
Walter S. Thomas ........1915-1918  
Montrose T. Burrows ....1918-1920  
Noble P. Sherwood (Acting) 1918-1919  
Frank A. McJunkin ......1920-1927  
Howard H. Bell ..........1921-1924  
Howard A. McCordock ....1929-1936

**ASSISTANT PROFESSORS**

Samuel H. Gray ..........1928-1929  
Howard A. McCordock ....1928-1929  
Walter J. Siebert .......1929-1938  
Margaret G. Smith ......1930-

**ASSOCIATE**

L. S. Newman Walsh ......1926-1927

**INSTRUCTORS**

Lydia M. DeWitt ..........1911-1912  
Walter M. Thomas .........1911-1915  
Howard H. Bell ...........1916-1921  
James C. Small ..........1919-1920  
L. S. Newman Walsh ......1922-1925  
Wm. A. Hudson ...........1922-1923  
Kenneth L. Burdon ......1923-1924  
Isaac Y. Olch ..........1923-1924  
Samuel H. Gray ..........1925-1928  
Walter J. Siebert .......1928-1929  
Jacob Rabinovitch ......1931-1932  
Eric W. Thurston .......1935-1936  
Elizabeth Moore .........1935-1936  
Henry W. Edmonds .......1936-1937  
Paul W. Wheeler .........1937-  
Edw. L. Burns ..........Jan.-June, 1937  
Henry Cline Allen .......1938-  
Aubrey C. Gose ..........1938-1939  
Edwin H. Lennette ......1938-1939  
Harry Mantz .............1939-1940  
William O. Russell ......1939-  
Elson B. Helwig ..........1939-

**LECTURER**

Thomas B. Pote ...........1933-
Prophylaxis of the Common Cold

THEO. E. WALSH, M.D.*

There can be drawn a fairly apt analogy between war and the invasion of the upper respiratory tissues by the organisms which give rise to the common cold. Following this analogy, the invading forces in upper respiratory infections are the many pathogenic bacteria associated with respiratory disease. The defenses of the nose against such invasion are twofold—the front line which consists of the mucus blanket and ciliated epithelium of the nasal mucosa, and the second line—the natural immune responses of the tissues to such bacteria.

The importance of maintaining an adequate first line of defense has been stressed by Proetz, Hilding, Lierle and others. They have pointed out the factors which tend to break down these defense mechanisms. The Fifth column activities of a dry, hot atmosphere, of metabolic disturbances, of dietary insufficiencies and the like are well known and deserve special attention. But unfortunately, the exigencies of modern living make possible the attacks of such Fifth columnists and the first line of defense is constantly weakened.

Another important factor in the invasion of the upper respiratory tissues which, again in the terminology of war, may be likened to the parachute troops, is the virus of the common cold. Its attack is of minor importance if unsupported. It does, however, prepare the ground for the main advance of the pathogenic bacteria by destroying the first line of defense. The virus unsupported by the secondary invaders is short lived.

As the habits of modern life do not permit us to live in an ideal environment as far as the nasal defenses are concerned, we must endeavor to build an adequate second line so that when invaders do penetrate the upper respiratory frontiers they may be met and checked before they can establish a base from which to spread. Such second line of defense consists of phagocytic cells and specific antibodies which can immobilize and destroy the invading organisms.

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For years vaccines of the common respiratory pathogens have been administered subcutaneously or orally in an endeavor to enhance the immune responses of the body against respiratory pathogens. That the results have not been satisfactory is seen by examining the literature on the subject. Where vaccines have been used in large and well controlled series of cases the incidence of colds in the vaccinated group differed slightly, if at all, from that in the control group. There is no time here to enumerate the contributions on the subject but they are summarized by Diehl in his experiments at the University of Minnesota, the results of which are published in the Journal of the American Medical Association in 1938.

In considering wherein lies the failure of such vaccinations one is led to conclude either that the respiratory organisms are on the whole poor antigens or that if they do produce antibodies adequately, these antibodies are not present in sufficient concentration in the vulnerable nasal tissues to be effective. It is well known that the ideal conditions of tissue immunity are those in which there are in the tissues both mobilized phagocytes and specific antibodies. These conditions may be obtained in the skin following the local injection of vaccine. The question arose whether they would also obtain in the nose following the application of vaccine to the nasal mucosa.

In an endeavor to investigate this question, Doctor Paul Cannon and I applied vaccine to the nasal mucosa of rabbits by dropping it into the nose using a tuberculin syringe without a needle and taking care that no trauma was inflicted. After varying periods of vaccination and at different intervals between vaccination and death, we removed the nasal mucosa, spleen, lungs and other tissues from the rabbit together with blood serum, extracted these tissues with saline and set up agglutination titrations against the homologous organism. We found that following local vaccination the antibody titer of the nasal mucosa was constantly higher than that of the spleen, liver and other tissues. It was frequently as high, and occasionally higher, than that of the serum.
On the other hand when we immunized rabbits with the same vaccine by subcutaneous injection the antibody titer of the nasal mucosa was seldom as high as that of the spleen and was always lower than that of the blood serum. We found further that the antibody produced was entirely specific so that, for example, if Bacillus typhosum was used as an antigen there was no cross agglutination with Bacillus paratyphosum B. and vice versa. We also found in microscopic sections of such vaccinated nasal tissues that there was a subepithelial accumulation of macrophages and lymphocytes which was not present in the animals which were vaccinated subcutaneously. In examining the results of such vaccinations, both subcutaneous and local, we found that the ratio of tissue antibodies to serum antibodies (the T. S. ratio) was on an average one to ten for parenterally administered vaccine, whereas when the

* Titrations were not taken above 1:1,920.
antigen was administered locally the T. S. ratio on the average was one to five. The specificity of the reaction led to a further experiment which was done to determine whether antibodies are actually formed locally or accumulate in the tissue because of inflammatory reactions. In this experiment we vaccinated rabbits by two methods with two antigens and at the same time. We used paratyphosum B. locally in the nose and typhosum by intraperitoneal injection. After appropriate times of vaccination, the tissues and serum were extracted and agglutination titrations against both antigens determined.

**TABLE 3.—Agglutinin Titers of Tissues and Serum of Animals Vaccinated Simultaneously with Two Antigens, One by Intraperitoneal Injection The Other By Intranasal Application**

<table>
<thead>
<tr>
<th>Animal</th>
<th>Antigen</th>
<th>Blood Serum</th>
<th>Nasal Mucosa</th>
<th>Lung</th>
<th>Spleen</th>
<th>Intestine</th>
</tr>
</thead>
<tbody>
<tr>
<td>56</td>
<td>Gen.</td>
<td>960</td>
<td>30</td>
<td>30</td>
<td>240</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Loc.</td>
<td>120</td>
<td>30</td>
<td>30</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>59</td>
<td>Gen.</td>
<td>1920</td>
<td>240</td>
<td>60</td>
<td>480</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Loc.</td>
<td>240</td>
<td>240</td>
<td>0</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>60</td>
<td>Gen.</td>
<td>960</td>
<td>30</td>
<td>120</td>
<td>480</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Loc.</td>
<td>960</td>
<td>120</td>
<td>240</td>
<td>60</td>
<td>0</td>
</tr>
<tr>
<td>61</td>
<td>Gen.</td>
<td>3840</td>
<td>240</td>
<td>240</td>
<td>480</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>Loc.</td>
<td>480</td>
<td>240</td>
<td>240</td>
<td>60</td>
<td>0</td>
</tr>
<tr>
<td>62</td>
<td>Gen.</td>
<td>1920</td>
<td>120</td>
<td>120</td>
<td>120</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Loc.</td>
<td>240</td>
<td>120</td>
<td>120</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>67</td>
<td>Gen.</td>
<td>960</td>
<td>60</td>
<td>120</td>
<td>120</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Loc.</td>
<td>480</td>
<td>480</td>
<td>480</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>68</td>
<td>Gen.</td>
<td>960</td>
<td>120</td>
<td>120</td>
<td>120</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Loc.</td>
<td>960</td>
<td>240</td>
<td>480</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>70</td>
<td>Gen.</td>
<td>960</td>
<td>30</td>
<td>30</td>
<td>120</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Loc.</td>
<td>960</td>
<td>240</td>
<td>480</td>
<td>60</td>
<td>30</td>
</tr>
</tbody>
</table>

The table shows the results and it is seen that where the blood serum titer of the two antigens is the same the titer in the mucosa for the locally applied antigen is many times higher than that for antigen administered parenterally. It seemed reasonable to conclude from such experiments that there is a local formation of antibody and at the same time a mobilization of phagocytes in the tissues—the ideal condition for tissue immunity. It followed therefore that if any protection against colds by the use of vaccine was to be hoped for, the rational method of immunization was by application of vaccine to the nasal mucosa. To this end we prepared polyvalent formalin killed vaccines from cultures taken in the ear, nose and throat clinic. The vaccine contained many strains of all the common respiratory pathogens.
Patients who complained of frequent colds were treated by spraying the vaccine into the nose each night during the cold season. In recording results of the use of vaccine in the prevention of colds it has been the custom of most observers to record the total number of colds in the group of individuals in the year before the vaccine was used and again in the year the vaccine was given and thereby to arrive at the average number of colds per person before and after vaccine. The percentage reduction of the number of colds in such a group is taken as a criterion of the efficacy of the vaccine. I felt that this was perhaps an incorrect method of recording the results because as Diehl pointed out, patients are very vague as to the exact number of colds they have experienced in previous years. For our results, therefore, we established the following criteria. If patients had no colds or perhaps one mild cold lasting not more than forty-eight hours, the result was said to be ‘Good’. More than two attacks of rhinitis, even though of short duration, and not more than three such attacks constituted a ‘Fair’ result. More than two mild colds or even one severe cold in spite of the patient’s protestations of improvement was labelled a ‘Bad’ result. The results on the basis of these criteria are seen in the table.

![Table 4](image)

In order to control this clinical experiment I obtained the cooperation of Doctor Dudley B. Reed of the Student Health Service at the University of Chicago. Students who came for prophylaxis against colds were given alternately solutions ‘A’ and ‘B’ as sprays. ‘A’ was the vaccine and ‘B’ a suspension of starch in saline with 1:10,000 merthiolate added to make it smell the same as the vaccine. The doctors in the clinic did not know which was the vaccine and which was the control. The students were unaware that an experiment was in prog-
ress and I did not see the students. At the end of the year Doctor Reed and his staff sent me the case histories of the students and I evaluated the results from these histories. I hoped in this way to eliminate any possible bias on my part in the evaluation of the results. The result of this experiment is seen in the table.

### Table 5

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Patients</th>
<th>Good</th>
<th>Fair</th>
<th>Combined</th>
<th>Bad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaccine</td>
<td>74</td>
<td>46—62%</td>
<td>11—15%</td>
<td>57—77%</td>
<td>17—23%</td>
</tr>
<tr>
<td>Control</td>
<td>74</td>
<td>37—50%</td>
<td></td>
<td>37—50%</td>
<td>87—50%</td>
</tr>
</tbody>
</table>

It is interesting to note fifty per cent good results in the control group. It bears out, I believe, Diehl’s observations that the memory of colds in previous years is vague. There occurred also in our series of clinic cases a chance to control the effects of the vaccine because some patients who used the vaccine one year and had good results felt that they were immune for the future and did not use it the second year and had just as many colds as before.

I published several such case histories recently in reporting these results. It was interesting further to note that in many cases, patients volunteered the information that they felt they were in for severe colds and had a period of perhaps twenty-four hours of acute rhinorrhea which subsided without further complications. I myself have experienced similar attacks which I felt probably were due to the virus of the cold.

If there is sufficient immunity against the secondary invaders such virus colds are self limiting and are usually over in twenty-four to forty-eight hours.

To summarize, therefore, there is ample experimental evidence to indicate that the rational method of vaccination against so local a disease as the common cold is by the application of vaccine to the vulnerable nasal tissues. The results of the clinical application of this principle in which of a total of 627 patients years of vaccine, 74% were good results, 10% were fair results and 16% failures, warrants, I believe, the further trial of this method in the prevention of the common cold.
Hypertension

FRANK GLENN, M.D., '27*

My remarks on hypertension are limited to the experimental and clinical investigation carried on in the Department of Surgery of the Cornell Medical College and New York Hospital by Doctor George J. Heuer and a group of his associates over the past 7 years.

Experimental

The production of an elevated systolic blood pressure in dogs by Goldblatt's method has been varied somewhat in detail in our hands but the underlying principal remains the same, namely the production of renal ischemia by constriction of the renal artery. We found the lumbar approach more simple in exposing the renal artery and a coil of silver wire less cumbersome than the Goldblatt clamp. Important as is the method of producing an elevation by blood pressure, equally also is the method of measuring the pressure. Thus far in our experience, we have found the Van Leersum Loop the most satisfactory although many investigators favor direct arterial puncture. Our modification of this loop as reported by Child and Glenn, reduced the mortality associated with its production from 30% to less than 5%.

The blood pressure following renal ischemia has been maintained at high levels 200-240 mm. Hg, for as long as 5 years. We have observed an acute phase of hypertension, seen most frequently in animals with too great a degree of renal ischemia, accompanied by renal failure and death. The cause of death, however, is not uremia. Hypertension, without impairment of renal function seems to be well tolerated by these animals, and many of them after 5 years show no evidence of cardiac enlargement or cardiac failure. Child found that the arterial lesion common in dogs with a well established hypertension was one of hyaline degeneration of the media, edema and sometimes fragmentation of the intima with a diminution

* From the Department of Surgery of the New York Hospital and Cornell University Medical College. Presented as a Wednesday afternoon Special Lecture at the Washington University School of Medicine, Feb. 13, 1941.
of the lumen and a peri-arterial fibrosis. Gross changes have been repeatedly observed in the vessels of the fundi.

One of the first experiments undertaken was to determine the role played by the glands of internal secretion. Glenn and Lasher demonstrated that total thyroidectomy in dogs did not effect either the production or maintenance of experimental hypertension. Castration of both male and female dogs was likewise done, and no change of blood pressure resulted. The pancreas was removed in part and in toto, without demonstrable effect upon experimental hypertension. Lasher, Glenn and Child carried out a series of experiments in which the adrenal glands were partially to completely removed, and came to the conclusion that partial unilateral or bilateral adrenalectomy causes a fluctuation in the blood pressure, but so long as sufficient adrenal gland remains or substitution therapy is employed, there is not an appreciable effect upon the blood pressure. In studying the pituitary, Sweet and Page showed that removal of the pituitary gland in animals results in a lowering of the blood pressure, but this is not sufficiently marked to justify the conclusion that the pituitary is intimately associated with the production or maintenance of this type of hypertension.

In a study of the role of the central nervous system in experimental hypertension, Glenn, Child and Heuer transplanted the remaining kidney, following unilateral nephrectomy, to the femoral vessels. These animals were then subjected to constriction of the new arterial blood supply, and a hypertension was produced. This demonstrated that constriction of the blood supply of the kidney resulted in an elevation of the blood pressure independently of its innervation. This same group did anterior root sections as well as splanchnicotomies upon a group of animals with an established hypertension, without producing a material fall in blood pressure. In a further attempt to investigate this aspect, Glenn, Child and Page destroyed the spinal cord in hypertensive animals below the level of the fifth cervical vertebra. There was an immediate sharp fall in the systolic pressure, which, however, over the course of an ensuing 40-60 days, became re-elevated to a hypertensive level. This work was further substantiated by Glenn and Lasher who destroyed the spinal cord first and then success-
fully produced hypertension by renal ischemia. They concluded from these experiments that the nervous system was not essential to the production or maintenance of experimental hypertension by constriction of the renal artery.

It was early hypothesized by Goldblatt, Page and others that a substance was elaborated in the ischemic kidney which was responsible for the hypertension. A series of experiments was undertaken to attempt to throw some light upon the nature of such a substance. Child and Glenn made reverse Eck-fistulas in hypertensive animals thus causing the venous blood from the kidney to flow through the liver, anticipating a possible detoxifying action by this organ, but none took place. The guanidine bases in the blood of hypertensive dogs were studied by Child who concluded that they were not increased by renal ischemia, nor did they parallel the elevated blood pressure. Otto Müller, a chemist, now undertook a group of experiments in an attempt to demonstrate chemical and physical changes taking place in the blood as it completed the renal circulation.

Müller, Nickel and Kauer studied the changes in the pH of the systemic blood in normal and hypertensive animals by means of a syringe type glass electrode. A large amount of data was collected, and it was concluded that the buffer action capacity of the systemic blood is sufficient to offset the introduction of an alkaline or acid substance if such is produced by the kidney as a result of ischemia. This was followed by another series of experiments in which the oxidation-reduction potentials were measured with the dropping mercury electrode; but here again these determinations did not permit drawing any conclusions concerning the identification of any specific substance in the systemic blood stream that was produced in the kidney as a result of renal ischemia. At the time that these experiments were carried out, extensive studies were made on the common constituents of the blood such as the blood-urea-nitrogen, and non-protein nitrogen, glucose and cholesterol, creatinine, uric acid and other substances without showing any material variation from the normal values. The urine of hypertensive animals was likewise studied and no abnormalities noted either as to its chemical or physical properties.

Lasher and Glenn studied a series of animals following the
production of an arterio-venous fistula between the renal artery and vein; only a temporary elevation of blood pressure resulted which soon disappeared followed by atrophy of the kidney.

Animals with long standing hypertension (4 years) have been subjected to experiments, the object of which has been to lower the blood pressure. The establishment of a collateral circulation by omentopexy and displacement of the ischemic kidney so that it rested in a bed of muscle, resulted in no lowering of blood pressure over a period of a year after such operations. Knapp gave a group of animals cyanate preparations over a period of several months as well as certain barbiturates without noting a fall in blood pressure. We have not used preparations from kidneys as described by Page and Harrison. In conjunction with Page, however, Knapp and McSwain have demonstrated that angiotonin is not inactivated in hepatectomized normal or hypertensive dogs, and furthermore, they found that renin activation is abolished at six hours in non-hypertensive hepatectomized animals, where if the animals are hypertensive, this inactivation occurs in two hours.

Clinical

We now turn to our experiences over a period of 7 years in the treatment of hypertension by surgical operations. During the first half of this period, the work was followed in close cooperation with Dr. Irvine H. Page of the Rockefeller Hospital. After Dr. Page left New York and began work in Indianapolis, the study was continued entirely within the New York Hospital in collaboration with Dr. Harold Stewart.

Three types of operation have been employed. They are: (1) Rhizotomy, or division of the anterior nerve roots of the spinal cord, (2) Supradiaphragmatic Resection of the splanchnic nerves combined with lower dorsal ganglionectomy, and (3) Subdiaphragmatic Resection of the splanchnic nerves combined with interruption of the first and second lumbar sympathetic ganglia.

Of 57 patients selected for surgical treatment, the operative procedures were completed in 49. Of the eight patients in whom the operation was not completed only one remains alive. Of the 49 patients in whom the operation was com-
pleted, 23 are now dead. The time that has elapsed since operation varies from three months to six and one-half years.

Rhizotomy, or anterior root section, consists in the division of the anterior nerve roots of the spinal cord from the sixth dorsal to the second lumbar vertebra. The sympathetic fibers carrying vaso-constrictor impulses to abdominal vessels below the diaphragm are thus divided.

The operation is usually performed in two stages, the first consisting in a laminectomy with exposure of the dura, the second consists in the opening of the dura and division of the nerve roots.

Of 23 patients selected for this operation, 19 were carried on to completion and of these 19, seven are now alive. All of those who had severe malignant hypertension at the time of operation are dead. Three years and nine months was the longest period to elapse between operation and death in this group. Following operation there was a fall in blood pressure which, over a period of two to three years approached but seldom reached or surpassed the pre-operative level. The subjective and some of the objective manifestations of the disease were definitely relieved. Specifically, we refer to the striking relief from headaches, nervousness and early fatigue on exertion. In many of these patients we observed the disappearance of papilledema and hemorrhage from the fundi following operation. That the disease was interrupted we cannot be sure because many of these patients died as the result of the disease within a period of the ordinary life expectancy as computed from vital statistic tables.

Supra-diaphragmatic splanchnic nerve resection with the interruption of the thoracic sympathetic chain was performed in 12 patients and was well borne in all. There were no complications or fatalities. The reduction in arterial pressure which occurred following operation, within six months returned to the pre-operative level in all patients. Subjective improvement, consisting of lessening in frequency and severity of headaches, decrease in the degree of nervousness, tenseness and irritability, occurred in the majority of patients with essential hypertension. Furthermore, the fatigue occurring on exertion was less evident. Improvement in those with malignant hypertension was transient.
Renal efficiency was unaffected by the operation. It also appeared to have no marked effect on the heart as judged by electrocardiographic records or Roentgen ray photographs. Reduction in intensity of the constriction in retinal arterioles occurred in all of the cases except one with malignant hypertension, suggesting to us that arteriolar relaxation occurs in regions other than those denervated. We have observed this constriction to return after several months.

Within a period of about five years after operation, six patients are alive and six are dead; with the exception of one patient, who died at three months after operation, all lived from one year to five years and three months and died of cardiovascular disease. Those that remain alive have been, for the most part, markedly improved. They have had relief of symptoms and lowering of blood pressure to the extent that four have returned to their regular occupations. The remaining two patients, we feel, are better than they would have been without the operation.

Twenty-two patients were selected for subdiaphragmatic splanchnicotomy and interruption or resection of the first and second lumbar ganglia. The operation was carried to completion in 18 cases. Two patients with severe malignant hypertension died after the first operation in uremia; one died of a cerebral accident after the first operation. One patient refused the second operation and died. The reduction of the blood pressure which occurred following the operation was marked but tended to return to the pre-operative level within a period of six months.

There was marked subjective improvement in many of the patients consisting of lessening in frequency and severity of headaches, nervousness, tenseness and irritability and a decrease of fatigue.

The renal efficiency was unaffected by the operation as indicated by urinary findings and the urea clearance test. The heart has not been observed to undergo any changes as determined by electrocardiographic records or Roentgen ray examination. Reduction in intensity of constriction of the retinal arterioles has occurred in many patients whose pressure has been lowered. With a re-elevation of the blood pressure some patients failed to exhibit a return of this constriction.
The medical and surgical treatment of hypertension is admittedly, for the most part, ineffective. By medical treatment we refer to that therapy which is dependent upon the use of various medications and the employment of those regimes outlined by any physician. The surgical treatment of hypertension, on the other hand, consists of the direct attack upon the disease by a surgical procedure. From the figures that we have presented it is evident that the procedures we employed are not sufficient to cure or interrupt the progress of this disease.

Of great importance in our experience, however, has been the alleviation of symptoms which has occurred so frequently in this group of cases that we can, without hesitating, state that the patients as a whole have been benefited.

This statement requires considerable qualification and detailed information which time does not permit. Suffice it to say we have selected the three most common complaints in this group of hypertension patients; namely (1) Headache, (2) Nervousness and (3) Fatigue on exertion, for a critical evaluation. Approximately 90% of the patients were relieved of headaches for varying periods after operation, nervousness was diminished in about 65% and fatigue on exertion lessened in slightly more than 60%. These observations together with the lowering of blood pressure following operation encourages us to continue our experimental and clinical investigations.
Since the last publication of the list of officers (October, 1940), the Table of Organization was increased from forty-two to seventy-three officers. All but one of the professional positions are filled or have applicants. A number of purely administrative positions are not filled and probably will not be unless the unit is mobilized.

ROSTER OF OFFICERS

**MEDICAL RESERVE CORPS**

**LIEUTENANT COLONEL**
1. Cady, Lee D.

**MAJORS**

1. Agress, Harry
2. Beam, Sim F.
3. Boemer, L. C.
4. Drake, Truman G.
5. Edwards, Joseph C.
6. Fish, Virgil O.
7. Gottlieb, Leo
9. Harrison, Stanley L.
10. Jorstad, Louis H.
11. Patton, John F.
12. Pruett, B. S.
13. Tureen, Louis L.*
14. Wachtler, Harry E.
15. Walton, Franklin B.

**CAPTAINS**

1. Alvis, E. B.
2. Blaney, Loren F.*
3. Bryan, William T. K.
4. Bricker, Eugene M.
5. Burford, Thomas
6. Gitt, Joseph H.*
7. Haffner, Heinz E.*
8. Hampton, Stanley F.
9. Harbison, Samuel
10. Kelley, Robert W.
11. Martin, Bruce C.
12. Russell, William O.
13. Russell, Thomas G.
14. Schwarz, Henry G.*
15. Shefts, Lawrence M.

**FIRST LIEUTENANTS**

1. Anschuetz, Robert
2. Brown, W. G.
3. Crider, Russell J.
5. Freedmann, Harold
6. Hartman, Paul T.
8. Kircher, Theodore E.
9. Parker, Joe Marion
10. Powers, John R.
11. Roberts, H. K.
12. Roulhac, George E.
13. Wedig, John H.
14. White, Bart N.
15. Wright, Sydney T.

**DENTAL RESERVE CORPS**

**MAJOR**
1. Gurley, Webb B.

**CAPTAINS**

1. Laffler, Joseph A.
2. O’Brien, Lane W.
3. Shepard, Earl E.

**FIRST LIEUTENANTS**

1. Hamp, Edward S.
2. Rose, James M.
3. Jasper, Lester H.
4. Smith, Thermon B.

**MEDICAL ADMINISTRATIVE RESERVE CORPS**

**FIRST LIEUTENANT**
1. Kurka, Harry

**SECOND LIEUTENANT**
1. Heiker, A. L.*
2. Hitchings, D. L.*
3. Moore, Geo. C.

**CHAPLAIN CORPS RESERVE**

**CAPTAIN**
1. Stotts, M. H.*

**QUARTERMASTER RESERVE CORPS**

**CAPTAIN**
1. McGrath, Ray

**SECOND LIEUTENANT**
1. Biston, A. L.*

* Applicant.
On Marking the Grave of Dr. Joseph Nash McDowell

The Medical Department of Kemper College founded by McDowell, 1840, was succeeded in time by the Missouri Medical College, later to join the St. Louis Medical College in the Medical Department of Washington University. In view of this meritorious outcome of the school started by McDowell it is interesting to recall some words spoken by him on the laying of the cornerstone of the first named school in 1840:

“And in view of the future we as little dream of what is to succeed, of the power and influence that is to congregate here and around us, as our fathers did when they stood on the banks of our mighty river, and supposed its giant waters would only be disturbed by the floating barge or the Indian canoe.”

Subscriptions are coming in and the bank balance growing toward the amount calculated to provide a marker for the grave of the founder of the Missouri Medical College. Many subscriptions have come from graduates of the Medical Department of Washington University, from recent graduates, and even from alumni of other schools in recognition of Dr. McDowell’s influence on medical education. As previously stated the sum of four hundred dollars will provide an appropriate granite marker and perpetual care of the cemetery lot. The amount still to be subscribed could be raised within a small group of alumni without much canvassing, but the committee feels that all graduates of the old school and of the present institution should have the opportunity of participating in this tribute to the memory of the Founder of one of the parent colleges. The time to do this is now. Send any amount, no matter how small. Checks should be written to the “Dr. Joseph Nash McDowell Memorial Fund” and addressed to the undersigned, Washington University, School of Medicine, St. Louis.

R. J. Terry, Secretary-Treasurer.
News of the School

80TH COMMENCEMENT EXERCISES

The eightieth commencement of Washington University with its conferring of 732 degrees, including one honorary degree, and diplomas to 26 nurses was held in the Field House on June 10, 1941. Ninety-eight of the degrees were conferred upon candidates from the School of Medicine. Former Governor Lloyd C. Stark was the recipient of the honorary degree of Doctor of Laws and 50 members of the R. O. T. C., in the name of President Roosevelt, were presented commissions in the Officers' Reserve Corps in the United States Army.

Former Governor Stark delivered the commencement address. He told the graduates that they were “cast in the role of pioneers in a scourged, but brave new world.” He went on to state that no graduating class had ever stepped out into a more exciting or challenging world.

Final honors were awarded the following members of the class of 1941 who were graduated cum laude: Bernice Albert, Robert Brooks Dickerson, Jane Arax Erganian, Harold Charles Franklin, Samuel Walter Gollub, Henry Samuel Guterman, Leon Kahn, Mathias Franz Frederick Kohl, Samuel Preston Martin, Jane Maysey Matthews, Vergil Nelson Slee, and Howard Seaborn Jones Walker, Jr.

The Alexander Berg Prize in Bacteriology was divided between two students of the class of 1942—Herman Theodore Blumenthal and Hyman Bernard Stillerman; the George F. Gill Prize in Anatomy was won by Bryce Harold Bondurant, 1944; the George F. Gill Prize in Pediatrics was awarded to Jane Arax Erganian; Louis Kahn won the Alpha Omega Alpha Book Prize; and Raymond Ray Lanier of the class of 1943 won the Howard A. McCordock Book Prize in Pathology.

DR. DAVID PRESWICK BARR'S FAREWELL DINNER

On June 28, 1941, a farewell dinner was given in honor of Dr. David Preswick Barr. Dr. Barr, after having directed the activities of the Department of Internal Medicine for seventeen years, had just resigned his position as Professor of Medicine at Washington University to accept a similar one at his
former alma mater, Cornell University. Attending the dinner was a capacity crowd of 168 former and present house officers and colleagues in St. Louis. Included among the former group were representatives from Illinois, Wisconsin, and Ohio. Acting as Toastmaster was Dr. Harry Alexander who had just been appointed acting Professor of Medicine in Dr. Barr's place. Among the speakers were Dr. Philip A. Shaffer, dean of the Washington University School of Medicine, Chancellor George R. Throop of Washington University, Mr. Frank C. Rand, representative of the Board of Trustees of Barnes Hospital, and Dr. Cyril MacBryde who presented a cap and gown to Dr. Barr as a gift from his admirers. All of these men paid tribute to Dr. Barr as a physician, teacher, and scientist. In addition, Dr. Shaffer reminisced about the events that led to the appointment of Dr. Barr to the Professorship of Medicine at Washington University in 1924. Dr. Alexander also read a note of salutation from Dr. Eugene DuBois, Professor of Medicine at Cornell University, who was Dr. Barr's former teacher and now his predecessor as head of the Department of Medicine at that institution.

Many were the expressions of regret at Dr. Barr's departure. Those of us who were close to him in the activities of the Department of Medicine realize the tremendous interest, time, and energy he devoted to furthering and developing the instruction and teaching facilities of the students and house officers. All of us are fully aware of the great progress the Department has made since he assumed the reins in 1924. His residents and internes have full cognizance of his continued and sincere interest in their future welfare.

The dinner was concluded with a few words by Dr. Barr in which he expressed his gratitude to his many colleagues and friends for their cooperation in performing the many duties of the Department of Medicine. He stated his belief that the Department would continue to progress and expressed his great regret at leaving his many St. Louis friends.

In closing this report, it seems fitting to quote the following excerpt from an editorial on Dr. Barr's departure printed in the June 30th issue of the St. Louis Post-Dispatch:

"This is the last day that Dr. David P. Barr is spending in St. Louis as professor of medicine in Washington University and physician-in-chief in Barnes Hospital."
St. Louis has come to know him as a great doctor and a great teacher whose special interest is in the field of endocrinology, but we shall remember him most for his public spirit. We are grateful for the 17 years that he gave to St. Louis and wish him all success in his new field."

EDWARD MASSIE, M.D.

FAREWELL DINNER TO DR. JOHN C. WHITEHORN

A farewell dinner was given in honor of Dr. John C. Whitehorn, Professor of Psychiatry, of the Washington University School of Medicine at the University Club on Tuesday, June 17, 1941 at 7:00 p.m. The dinner was occasioned by the resignation of Dr. Whitehorn as Professor of Psychiatry of the Washington University School of Medicine in order to accept the appointment as Professor of Psychiatry of the Johns Hopkins University School of Medicine at Baltimore, Maryland.

About 35 guests were present including Dr. Shaffer, members of the faculty of the School of Medicine, clinical associates of Dr. Whitehorn’s and some members of the staff of the Bliss Psychopathic Institute. The dinner was quite informal with many exchanges of pleasantries, some reminiscences and many expressions of regret and congratulation. A few informal talks were made by Dr. Shaffer, Dr. Sidney Schwab, Dr. David Rioch and some other members of the group present. Dr. Shaffer in his remarks spoke of his early acquaintance with Dr. Whitehorn and of the circumstances under which he was brought to St. Louis as a very promising professor of Psychiatry. Dr. Schwab, who also acted as toastmaster, told of his associations with Dr. Whitehorn during his brief two year stay in St. Louis and of the promises which the future held for him. All of those present were lavish in their praise of Dr. Whitehorn—of his accomplishments and of his rapid rise to prominence in the field of academic psychiatry and all were likewise profuse in their expressions of regret at his leaving St. Louis and the faculty of Washington University. In response to these remarks Dr. Whitehorn himself expressed his appreciation and gratitude of the good will extended to him and of the many wishes for his continued success in the future. The dinner was finally concluded with a toast to Dr. Whitehorn wishing him much success in his new position.

J. E. MIKSICEK, M.D.
ALUMNI BANQUET

The annual banquet of the Medical School Alumni Association was held at the Hotel Jefferson on Saturday night, May 31, 1941. Two hundred and eight attended and the graduating class were guests of the Alumni. Dr. Wm. G. Becke, retiring president of the Alumni Association, presided. The president of the Senior class, Dr. Cramer Reed, responded to his introduction with a short but pertinent speech of appreciation. Dr. Edwin C. Schmidtke read the financial report which showed a marked improvement in all phases of the association’s activities during the past year. The report is printed elsewhere in this issue of the Quarterly.

The election of officers and five members of the Executive Committee was made by acclamation. The officers are: Dr. Charles A. Stone, president; Dr. Theodore P. Brookes and Dr. Leslie C. Drews, vice-presidents; and Dr. James W. Bagby, secretary-treasurer. Drs. Becke, Thomas W. Davis, Wulff and Pickrell were elected to the executive committee and Dr. Theodore H. Hanser was elected to fill Dr. Theodore Brookes unexpired term.

Dr. Louis H. Jorstad, Chairman of the Foundation Committee, presented a report of that committee outlining the work that had been done and stating that it was now ready to present this report to the officers of the other Alumni Associations.

A short period of entertainment followed the business session in the form of a picture show and impersonations.

REUNION OF THE CLASS OF 1895, MISSOURI MEDICAL COLLEGE

The fair town of Peoria in the State of Illinois was the place and Dr. Sandor Horwitz the host for the gathering of members of the Class of 1895, Missouri Medical College, met to celebrate on the 11th and 12th of June, the forty-sixth anniversary of their graduation. Sandor’s was a true welcome from the heart, revealed as the programme of his entertainment unfolded. Meeting us at the station, we were conducted to our quarters in the hotel and thence to the famous Establishment of Hiram Walker where, in the banqueting hall a wonderful dinner was served, the hospitality of the Establish-
Reunion of Class of 1895, Missouri Medical College

Place cards were adorned with the likeness of each member present, copied from the Class Picture made in 1895: Ahlbrandt, Horwitz, Quinn, McMackin, McNutt, Schluter, Tolleson, Winn, Zahorsky, Terry. That it was a jolly occasion needs no remark. At the business meeting following, pleasant messages from absent classmates were read, a report of progress on Marking the Grave of Dr. Joseph Nash McDowell was made and further steps taken to engage the interest of all alumni in carrying through the plan. A tour of inspection of the laboratories of the Establishment introduced us to the superb equipment and the many scientific methods employed in maintaining the high standard of its products. Whether our visit first thing next morning to the interesting features of the Rozelle Dairy was or was not planned by our host as a therapeutic measure we do not know; as such, be assured, there wasn’t the slightest indication there for. Until noon we toured the Caterpillar Company’s great plant covering acres and acres with foundries, machine shops, laboratories (even biological), medical dispensaries and all things that go to constitute a great industrial center. We were ready for the delicious luncheon waiting us in the staff dining room where we had the pleasure of meeting officers of the
Company, our hosts. Mrs. Quinn and Mrs. Zahorsky accompanied their husbands, and Sandor's son-in-law and daughter, Mr. and Mrs. Goldstein and their two children were guests at the reunion.

NEW PHYSICAL ANTHROPOLOGY LABORATORY

The laboratory of physical anthropology of the Department of Anatomy will be installed in new quarters by September at latest. This will be the former laboratory of the professor of anatomy together with some space partitioned off from the adjacent area of the fourth floor corridor. The large collection of skeletons, heretofore stored in part in wooden cases in the corridor and partly in steel cabinets in two rooms, is now protected in steel cases in the new laboratory, where also death masks and other materials of the collection are to be placed. Space is provided for investigators' tables, anthropometric apparatus and for the files of records documenting the collection. This material is of high value for research, derived as it has been from known sources. The new housing in fireproof cabinets insures the protection that the collection deserves. This provision was made possible by the financial aid of friends of the Department of Anatomy.

DR. TERRY HONORED

Invitations were sent out by the Department of Anatomy to colleagues of Dr. Robert Terry and their wives to participate in a surprise party Saturday, June 2d, four to seven o'clock at "Terry Hut," the doctor's home in Crescent, St. Louis County. A hundred or more responded by their presence, bringing greetings and congratulations to the doctor on his forty-six years' incumbency in the Department, partook of refreshments under the big maple tree, drank a delectable brew to health and happy days to come to the professor emeritus.
Alumni Association of the Washington University Medical School

FINANCIAL STATEMENT
December 31, 1940 - May 1, 1941

| Cash, First National Bank, St. Louis, Mo., December 31, 1940 | $1,745.84 |
| Cash on Hand, December 31, 1940 | 3.88 |

| RECEIPTS |
|-----------------|-----------------|
| Terry Fund—Payment of loan | $100.00 |
| Dues | 1,346.00 |
| Total Receipts | 1,446.00 |

| DISBURSEMENTS |
|-----------------|-----------------|
| Robert Stortz, student loan | $250.00 |
| Missouri Envelope Co. | 19.94 |
| Stephens Printing Co. | 7.65 |
| Rufus Jackson, Postmaster | 25.00 |
| Rufus Jackson, Postmaster | 25.00 |
| Stephens Printing Co. | 55.08 |
| Miss Hunt, office expense | 25.00 |
| Bank Charge | 10.60 |
| Total Disbursements | 418.27 |

| Cash on Hand, May 1st, 1941 | 5.32 |

| Cash, First National Bank, May 1, 1941 | $2,772.13 |

Financial condition as of May 1, 1941

| ASSETS |
|-----------------|-----------------|
| Cash, First National Bank, St. Louis, Mo. | $2,772.13 |
| Cash on hand | 5.32 |
| Student Loans | 1,646.00 |
| Total Assets | $4,423.45 |
DEPARTMENTAL CONFERENCES

Pathology

MEDIAL CORONARY SCLEROSIS IN INFANCY

History No. Q2572: A six weeks old white male infant was admitted to the St. Louis Children’s Hospital on December 4, 1941 with the complaint of having had periods of wakefulness, fretfulness and crying during the night as though in pain. The child was dyspeptic and irritable.

The child was born in Maternity Hospital on October 27, 1940 and was considered normal until the age of one month. At that time he had a diarrhea which was treated successfully by a change in formula.

Physical examination upon admission showed a normal temperature. The respirations were of the type seen in acidosis. The child weighed 3,800 grams. The liver margin was three centimeters below the right costal margin, and the spleen extended not quite as far downward. The patient presented a picture of peripheral circulatory failure. No evidence of infection was present and the cultures of blood, stool and urine revealed no pathogenic organisms, urinalysis revealed one plus albumin, with four red blood cells, and three white blood cells per high power field in a centrifuged specimen. There were 3,900,000 red blood cells per cubic millimeter of blood and 11.3 grams of hemoglobin per 100 cc. of blood. The white blood count was 15,600 cells per cubic millimeter. Upon admission the carbon dioxide combining power was 27.6 volumes per cent. The blood sugar was 246 milligrams per cent.

After a few hours in an oxygen tent the child was no longer dyspeptic. Examination of the chest by means of X-ray showed that the heart was enlarged and pear shaped and had feeble pulsations.

On the second hospital day the temperature was 38.7 degrees centigrade. An infection in the kidneys was suspected but could not be proven. The blood non-protein nitrogen was normal.

The child became dyspeptic when removed from the oxygen tent, but cyanosis was not a prominent feature. In general
he appeared to improve but on his fourteenth hospital day, he suddenly became dyspneic and cyanotic and died in a few hours.

Autopsy Washington University No. 8970: The gross findings in this child were not remarkable. The heart was enlarged to about three times normal size. The myocardium was light pinkish red and moderately firm. On the cut section there were numerous fine gray streaks through the myocardium. The valves were normal. Microscopic examination revealed a remarkable picture. The media of many of the coronary arteries was replaced by large plaques of calcium, and the intima of the smaller coronary arteries was thickened by proliferation of cells. Throughout the muscle there were small areas of both recent and healed infarction. There were small foci of necrosis in the liver, and the midzonal region showed an increase of fibrous tissue. In the kidney there was calcification of some of the glomeruli and tubules.

Discussion: According to the report of Brown and Richter (Arch. Path. 31: 449, 1941) there are not over 7 examples of this extraordinary condition in the medical literature. The lesions in the present case are typical of the usual picture. As possible etiological factors there has been suggested renal insufficiency due to alterations in the blood calcium and phosphorus; tumor of the parathyroid glands; extensive primary disease of bone; overdosage with parathormone or vitamin D; and parenteral injections of calcium salts. In our case it does not appear that any of these conditions existed. We did not have an opportunity to examine the parathyroids, but sections of several bones showed nothing more than delayed growth of bone.

CELLULITIS OF THE LEGS ASSOCIATED WITH DIABETES

History No. B 667: An 84 year old white woman was admitted to Barnes Hospital on January 21, 1941 complaining of stiffness, tenderness, swelling and redness of her left leg. Several days before admission, she had noticed tenderness in her left leg and two days before entry, she had a chill which caused her to call her doctor. He advised hospitalization.

The patient had diabetes for 25 years. In August 1931, she was in Barnes Hospital for treatment for diabetes mellitus complicated by an abscess of the abdominal wall. An incision
and drainage of the abscess was done, and her diabetes was regulated by means of insulin. In November 1935, she was again in Barnes Hospital. The diagnoses upon discharge were diabetes mellitus, diabetic pruritis, ichthyosis vulgaris, furunculosis, arteriosclerotic heart disease, and cardiac decompensation. Since 1935, the patient was said to have been in diabetic coma on two occasions. For the past several years her legs had been brawny, her ankles were frequently swollen, and she was able to get around only with difficulty.

Physical examination upon her final admission revealed a fairly well developed, obese, stuporous, uncomfortable elderly white woman. The temperature taken rectally was 40.3° C., the pulse rate was 160 per minute and the respiratory rate was 40 per minute. The skin over the left leg, ankle, and foot was red, shiny, and scaly. There was no definite line of demarcation between involved and uninvolved skin. The right leg was similarly but only slightly involved.

The red blood cell count was 5,260,000 per cmm., hemoglobin 93%, white blood cell count 12,200 per c. mm., and the differential count of the white cells showed juvenile cells 3%, stab cells 11%, segmented cells 58%, lymphocytes 25%, and monocytes 3%. The urine contained no albumin, two plus sugar, two plus acetone, and an occasional white blood cell. Stools were normal. The Kahn reaction for syphilis was negative. The blood sugar upon admission was 300 mg. % and the blood total non-protein nitrogen was 28 mg. %. A blood culture was sterile. An electrocardiogram just after entry showed auricular fibrillation, ventricular premature contractions and left axis deviation. Soon thereafter, the rhythm was regular. An X-ray plate of the chest suggested a pleural effusion on the left.

The patient was started on a diet of 70 grams of protein, 100 grams of fat and 150 grams of carbohydrate per day. She was given protamine zinc insulin 30 units and regular insulin 20 units a day. This dosage did not quite control her glycosuria. She was given sulphanilamide, and her leg was elevated. She was in a mild stupor all during her hospital stay and took food and liquids only with great urging. Her temperature remained elevated, her leg became worse, and she died on her seventeenth hospital day.
Autopsy Washington University No. 9051: There was advanced arteriosclerosis of the aorta, coronary, carotid, celiac, splenic, mesenteric, and iliac arteries. The kidneys weighed 130 and 210 grams each. The surface was finely granular, and the markings were indistinct (arteriolar nephrosclerosis). The heart was slightly enlarged and weighed 307 grams. The pancreas was atrophic and largely replaced by fat tissue which separated the lobules. On the dorsum of the left foot there was a swollen red area 5 centimeters in length from which thick yellow pus could be expressed. On two leaflets of the aortic valve there were some friable vegetations (acute vegetative endocarditis).

Microscopically the small remaining pancreatic tissue was partially replaced by fibrous tissue. In the kidney there was a deposit of a hyaline substance between the glomerular capillaries. A culture of the abscess on the foot revealed Staphylococcus aureus hemolyticus.

Discussion: This patient is a typical example of the usual pathological changes in the elderly diabetic. There is advanced arteriosclerosis of the large blood vessels and moderate thickening of the arterioles. The hyalin deposit in the glomeruli are of considerable interest. They were first described by Kimmelstiel and Wilson (Am. J. Path., 12: 83, 1936). Since then numerous other investigators have confirmed the original findings that this lesion is characteristic of the combination of diabetes and hypertension. The most recent study by Allen (Arch. Path., 232: 33, 1941) revealed the change in 33% of all diabetic patients over the age of 40 years. It is rarely found in individuals without diabetes. The exact etiology and pathogenesis has not yet been established.

The infection in this patient is an example of the generally accepted close association of infection with diabetes. The reason for this relation is not well understood. Experimental studies of the humoral and cellular defences of the body reveal that they are essentially normal in diabetic individuals.
INTUSSUSCEPTION ASSOCIATED WITH MECKEL'S DIVERTICULUM

History No. B598: An 8 year old white boy was admitted to the St. Louis Children's Hospital on March 24, 1941. The child had been well until six days prior to admission, when he had experienced some abdominal pain, which lasted one hour and did not recur. An enema apparently relieved the pain, but the child remained in bed. The following day a mass was felt in the right lower quadrant of the abdomen. During the six days prior to admission, the patient received castor oil, laxative pills, and enemas. During the 3 days prior to entry the child had frequent attacks of nausea, vomiting, hiccoughs and belching. The only bowel movement during the six days of illness occurred two days before entry, and the stool was dark red and tarry. For 48 hours prior to entry, the abdomen was persistently distended and the vomitus was brown and foul-smelling.

The past history was negative except for the occurrence of a copious rectal hemorrhage at the age of 23 months, and for a convulsion at 36 months of age.

Physical examination revealed a toxic, acutely ill, sleepy white boy of 8 years. The abdomen was distended and was tender to any but the lightest palpation. No masses were palpated and no sounds were heard on auscultation of the abdomen.

Laboratory work revealed a normal red blood cell count, and a normal white blood cell count. Differential white cell count showed 10 juvenile cells, 60 stabs, 11 cells with segmented nuclei, 14 lymphocytes, and 5 monocytes. The urine was acid in reaction. The blood had a carbon dioxide content of 72.2 volumes present. Blood non-protein nitrogen was 82 milligrams percent and serum chloride content was 311 milligrams percent. The total serum protein and blood sugar were normal. A blood culture was sterile.

The child was given 800 cc. of lactate Ringers solution subcutaneously and 500 cc. of 10% glucose intravenously. A Wangensteen apparatus and stomach tube were used to empty the stomach of accumulated secretions. The child received sulfathiazol, blood transfusions, and fluids, but his condition did not improve. His temperature was 38.5 degrees centigrade.
Following fluids and blood transfusions, the carbon dioxide content of his blood was 80.5 volumes percent, and the chloride content of the serum was 340 milligrams percent. Laparotomy was done on the first hospital day and a segment of small intestine the seat of an intussusception was removed.

Following the operation, 1000 cc. of the following solution were administered:

- Amino acids 10% 500 cc.
- Glucose 10% 250 cc.
- Ringers (ordinary) 250 cc.

Despite all attempts at therapy, the child died 30 hours after entry into the hospital.

Autopsy Washington University No. 9103: The essential pathologic findings at autopsy were an acute fibrinous peritonitis, cloudy swelling of the liver, and hyperplasia of the mesenteric lymph nodes and of the spleen. Two centimeters proximal to the ileo cecal valve there was an end to end anastomosis of the ileum. The suture line was intact and there was no leakage. Microscopic examination added nothing significant.

Discussion: The specimen removal at surgical operation is the interesting part of this case. There was an intussusception of the ileum directly associated with a Meckel’s diverticulum. This relation is a not uncommon one and has been repeatedly commented on in the medical literature, (Ann. Surg. 98: 713, 1933).

THROMBOPHLEBITIS OF THE CAVERNOUS SINUSES

History No. R924: A 6½ year old white boy was admitted to the St. Louis Children’s Hospital on May 13, 1941. Six days before entry a sty was noticed on the upper lid of the left eye. Two days before admission the lid became red, hot, swollen, and tender. There was a chill and sudden rise in temperature.

On admission the temperature was 40° C. The abnormal physical findings were limited to the eyes. The left upper eyelid was dark purple and tremendously edematous, overlapping the lower lid. Small, shot-like, indurated areas were palpable deep in the lid, and a small area of fluctuation was present in the center. A red firm area of lymphangitis extended into the skin of the forehead at the lateral end of the left eyebrow.
Purulent exudate was present in the conjuctival sac with adherence of the eyelids, and the pupil was myotic, but the eyeball was intact. Only a slight reflex to light was present. The lower lid was slightly edematous but not red or tender. The right eye showed a small amount of palpebral edema, but no redness or tenderness. The eyelids were glued together by a sanguino-purulent secretion. The globe was intact, but there was pupillary myosis and only slight reaction to light. The conjunctiva was red, congested, and the area of the inferior punctum was excoriated. No secretion could be expressed from the tear sac, and there were no enlarged preauricular lymph nodes.

The patient was seen in consultation by several members of the Eye Service, who recommended incision of the left upper eyelid. This was done, but no purulent material was found. A blood culture was taken, and the patient was started on sulfathiazol. On the second hospital day the blood culture showed 25 colonies of Staphylococcus aureus per cubic centimeter of blood, and the patient was given antistaphylococcal rabbit serum. The temperature remained high and the patient did not improve in the next few days. Blood transfusions and parenteral fluids were administered. On May 18, the fifth hospital day, there were many small firm palpable veins above each eye, and both were markedly swollen, although the left was still the most prominent. On auscultation, there were high pitched breath sounds and a suggestion of friction rub over the right posterior thorax, and slight dullness to percussion was present in the same area. The heart sounds were of poor quality and in the 4th intercostal space just to the left of the sternum, there was a suggestion of pericardial friction rub. The patient was comatose, and despite all attempts at treatment died at 2:30 P. M.

The essential laboratory findings were: the urine was normal; the admission erythrocyte count was 4.83 million and the leukocytes were 15,000. There were 2% myelocytes, 10% juveniles, 40% stab forms, 40% neutrophils, 1% basophils, 6% lymphocytes, and 1% monocytes. The Kline and Kahn reactions of the blood were negative and an intradermal tuberculin test was negative.

Autopsy Washington University No. 9183: There was a
diffuse cellulitis of the eyelids and of the periorbital tissue of
the left eye together with a thrombophlebitis of both cavern-
ous sinuses. Over the tip of the left temporal lobe of the brain
there was a localized leptomeningitis and pachymeningitis.
Throughout all lobes of the lungs there were numerous small
abscesses and the pleura throughout was covered by a fine
fibrinous exudate. Staphylococcus aureus was isolated from
the lesions of the brain, of the lung, and of the pleura.

Discussion: The inflammation in the region of the eye
drained into the cavernous sinus and there incited an inflam-
mation leading to thrombosis. Emboli from this thrombophle-
bitis passed to the lungs and there caused the formation of
numerous abscesses.

ARACHNOIDAL FIBROBLASTOMA OF THE
CEREBELLOPONTINE ANGLE WITH
ESOPHAGOMALACIA

History No. A10558: A 35 year old American farmer was
admitted to the neurosurgical service of the Barnes Hospital
December 16, 1940. The patient was well until 5 months be-
fore admission when he first noticed a staggering gait. At
about that same time he noticed an inability to hear in the
left ear and was conscious of a queer thick feeling in his
tongue, frontal headaches and double vision with blurring of
visual images. A tonsillectomy had been performed 4 weeks
prior to admission. The patient had lost 25 lbs. in weight
during the two months prior to entry at Barnes Hospital.

Physical examination revealed a well developed and well
nourished white man. There were lateral nystagmus to the
left, anti-clockwise rotary nystagmus, bilateral papilledema
with hemorrhages in the fundi, ataxia of the left arm and leg,
paralysis of the left eighth cranial nerve, and a hypoesthesia
of the right side of the face.

On December 18, 1940 a cerebellar craniotomy was per-
formed and a large tumor in the cerebellopontine angle was
removed. Immediately following operation the patient was
given parenteral fluids and his condition was regarded as good.
Two days post operative a nasal tube was inserted and the
patient was put on frequent tube feedings. His general con-
dition appeared good, and two days later, with his temperature
37°, the tube was removed and oral feedings were instituted.
The next day his temperature rose to 40° and he experienced difficulty in swallowing, especially when he lay on the right side. On December 25, the patient was regarded as critically ill, and breath sounds were absent over the left chest. The patient was immediately placed in an oxygen tent. A lumbar puncture revealed a clear fluid with 20 cells per cmm. and the culture was negative. Sulphanilamide was given parenterally. On December 26, sulfapyridine was given. Many rales were heard over the right and left lungs. A sputum culture grew Friedlander's bacilli and staphylococci. A transfusion and more chemotherapy were given December 27, but the acute pulmonary symptoms increased and the patient died on the 9th post operative day.

Laboratory studies on entry: The urine examination was negative. The hemoglobin was 100% with 5.15 million red blood cells and there were 6,700 white blood cells per cmm.

Autopsy Washington University #8983: A small mass of the tumor, 1 cm. in diameter, was found attached to the dura near the beginning of the sigmoid sinus. There was an acute esophagitis with perforation of the lower third of the esophagus. Gastric contents were present in the left pleural cavity with partial digestion of the surface of the lower lobe of the left lung. There was a bronchopneumonia of both lungs.

Discussion: The relation of certain lesions in the base of the brain with digestion of the esophagus and of the fundus of the stomach has been known for many years. It is thought by some that this lesion is post-mortem change, but the presence of an inflammation in the tissues is strong evidence that the autolysis is initiated before death. Similar lesions have been produced in animals by injury to parts of the brain. The critical area is probably the tuber cinereum. (Surg., Gynec. and Obst. 55: 1, 1932.)

Urology

This patient (W. P.: BH 89284, male, aged 45, provides an interesting example of the usefulness of blood chemistry studies in the clinical management of some urologic cases. The history, physical and routine blood and urine studies on admission pointed to mechanical obstruction in the lower urinary tract associated with probable upper urinary tract infection
and renal insufficiency. Cystoscopic studies confirmed this. The patient showed some clinical evidence of chronic uremia on admission which was verified by a moderate elevation of his NPN. The ease with which this test can be obtained usually has facilitated the recognition of uremic or pre-uremic states in many cases before there was clinical evidence of such toxicity.

The mechanics of uremia are not always clear. In this case, the patient changed abruptly after operative interference from a chronic to an acute form of uremia with a tremendous elevation of the NPN. The rise in non-protein nitrogen was associated with a fall in his blood CO2. The acute fulminating type of renal insufficiency is frequently associated with a severe acidosis. The latter may not be easily recognizable from a clinical standpoint so that, unless facilities for CO2 determinations are available, and full use is made of them, one important aspect of the uremia may be missed.

Since the predominant fact in the clinical management of pure uremia is dehydration, prompt replacement therapy with salt and water is often sufficient to combat a uremia. Particularly in chronic renal insufficiency and chronic acidosis, adequate fluids, an alkaline ash diet and the oral alkalinization may suffice to control the individual’s tendency to lapse into acidosis.

It was deemed advisable in this case, however, to relieve the acidosis by a single balancing dose of one-sixth molar sodium r-lactate given intravenously and subcutaneously as described by Hartmann. This restoration of normal CO2 values seems to be of vital importance often in arresting an abrupt upswing of nitrogen values or in starting them downward. Subsequently it was found that this man’s NPN could be held near its original level by the oral use of molar sodium r-lactate. The degree of renal damage was such, however, that he would lapse into acidosis promptly if the lactate was discontinued. On one occasion, the CO2 was allowed to rise to 103 through inadvertent over-dosage with the oral lactate. There was no apparent ill effect other than some slight vomiting. The blood chlorides were found somewhat lowered and there was an immediate favorable response to the use of glucose in saline and temporary cessation of the lactate.
The phenomenon of renal insufficiency and associated acidosis has been noted repeatedly during recent years on the urologic service as more detailed blood chemistry studies of these cases have been attempted. We feel that the additional laboratory information has assisted materially in a better understanding of disturbed renal physiology and a more successful clinical management of such cases.

Rogers Deakin, M.D.

Letters

A Letter From An Alumnus Engaged in Rural Medical Practice

For the past several years the editors of the Washington University Medical Alumni Quarterly have been kind enough to list me as a collaborator, but my function in that capacity has been limited to a few squibs concerning members of my class. This letter is the result of a growing desire to discuss certain situations in rural medicine which concern the school, the graduates, and the profession as a whole. Because of the "privacy" which our Alumni Quarterly offers, it is peculiarly adapted to such a discussion.

It will be admitted that the function of the medical profession is to provide, or at least to offer, the best possible medical care to everyone. If this care is offered but not accepted, the indication is that the public does not agree with the profession as to the type of service provided. This condition does not exist except in a few isolated instances. There is developing, however, an increasing failure by the profession to offer adequate care. Many rural communities are without medical doctors through death and the lack of replacement. In our county there is only one young doctor who has settled in a town outside of the county seat in over twenty years. This includes some five towns of several hundred to a thousand people which serve a farm population of about ten thousand people. Formerly each of these towns had from two to five or more doctors. As these physicians have been lost from service, many people have turned to irregular practitioners, not only for the application of the latter's healing art, but for general medical care—an indication that such care is not available from a regular practitioner, either because of the absence or the in-
adequacy of the latter. This condition is developing, not because irregular practitioners are generally preferred to medical doctors, but because the services of the latter are not available. The result is, therefore, that irregular practitioners provide the medical care for a larger part of many rural communities. Since these men are not admitted for practice in the county hospitals, and since they do not have the opportunity for consultation with the medical doctors to whom the hospital and surgical practice of their communities would normally drift, a rather serious rift is created. The people of the communities do not understand how in the presence of sickness and suffering that it is right for them to be penalized by rules of ethics, and in general there is a tendency to side with the individual who has taken care of them and for whom they have developed a feeling of friendship. This has already resulted in the development of hospitals in some communities operated by and for irregular practitioners, and in the present series of attempts in the state legislature to open county hospitals to all practitioners recognized by law.

Any permanent solution of the problem of the irregular practitioner which will be satisfactory to the medical profession, must be based on the provision of accessible medical care for all the people that desire it. The present tendency to centralize medicine about large institutions and the influx of the irregular practitioner have greatly reduced the practical influence of the profession over the population as a whole. This is strikingly indicated by the fact that for a number of years the profession has not been able to directly or indirectly control medical legislation in our state legislature.

From an economic standpoint there is little argument against practicing in rural areas. The average physician out of internship usually does as well, if not better, than does his brother in the city. With modern roads and hospitals, the opportunity to develop a remunerative practice and even to specialize, is almost as good as in the average city, and the success of such a venture is only limited by the ability of the individual.

There is only one answer to all of this. The medical profession should provide service for these people, or they will go elsewhere. The need is more acutely felt in rural than in
urban communities, and those of us who practice in the rural areas, feel that the indicated solution lies particularly at the door of the medical schools. The number of graduates from medical schools must be increased to fit the needs of the country, either by an increase in the number of schools or by an increase in the number of graduates from each of them. The improvement in medical education in the past few decades has been monumental. It has, however, been on an idealistic basis with the great emphasis on quality. National defense needs can only aggravate the existing rural medical problem. Idealism must, if necessary, be merged with practicality and plans be made to educate and graduate more physicians.

It is of course very easy to say that certain things should be done. This discussion does not even consider the economic aspects of the question, the fact that the facilities of the medical schools are organized for classes of certain sizes, and that their incomes are lower than they have been for years. The problems which such an undertaking would create, would be enormous but their presence in no wise modifies the problem and in no way invalidates the law of demand and supply which will inexorably result in others filling the need which we should properly fill.

Arie C. van Ravenswaay

Some time ago inquiry for the address of Dr. A. C. Schulenburg, ’06, was published in an issue of the Quarterly and was noted by a classmate, Dr. H. Roe, of Rock Springs, Wyoming. Dr. Roe wrote to the postmaster in Ventersdorf, Transvaal, South Africa, and the following is excerpts of the letter he received in reply:

My dear Roe,

Your letter written on Jan. 10th. to our local Postmaster was handed to me yesterday. I am writing in reply to your enquiries and am glad to be able to state that I am still alive and still “going strong.” Many years ago I received your letter and am certain that I replied immediately; whether you have received this letter I am, of course, unable to say. However, I am glad to have a word from an old University pal and to know that you are quite well. Write me all you know
of the others such as Zelle, Gundlach, Kirby, Bell, Weiss, Parker and others and if possible ask the Secretary of our Alumni Association to post me available journals and papers from time to time. I am agreeable to contribute funds towards our Alumni Association from time to time if you could let me have the name and address of the Secretary.

Now that a direct shipping line from New York to Cape Town in South Africa is being planned and will be in operation before very long, I still entertain hopes of visiting the U. S. A. soon after the present war is over.

As you know, I started a practice here in 1909 after qualifying and doing post graduate work in London. Well, I am still carrying on the good work with the assistance of my eldest son who qualified in London in 1939. Our second son is at present a Surgeon-Specialist in a large hospital at Dartford near London. He qualified at the University of Cape Town in 1937, M.B. Bch. shortly afterwards proceeded to London to specialize in surgery. He passed his M.R.C.S. L.R.C.P. in 1939 and his final F.R.C.S. in 1940. With the outbreak of war he was appointed a surgeon at above hospital and is doing good work.

In the English Medical Journal, The Lancet of Sept. 21, 1940 you will find an article by him and another South African, Cohen on the treatment of war-wounds—it concerns the treatment of wounded men after the Duinkerkerk retreat, etc. I do not expect him to return before the war is over.

Our third son is also studying medicine at the University of Cape Town and is now in his fifth year. The course here being six years, he will qualify in 1942. So you can see that all three boys have taken the medicine as a career which is flattering to a father; I am proud of the boys.

The only daughter aged 18, is studying Social Science at Cape Town University.

Personally I have been trying to assist in the organization of our profession and have been in The Federal Council of our Association (S. A. Medical Assn.) for nine years.

On a visit to Europe in 1936 I had the pleasure of representing our division at an Imperial Med. Congress at Oxford, England.
Recently I have been elected a F.R.S.A. England, this is a purely honorary title (Fellow Royal Society of Arts).

You can judge from all this that I have been trying to uphold the honour and tradition of our Alma Mater, The Washington University Medical School, to the best of my ability, in this part of the world. I shall try to carry on in the same spirit for the rest of the few years I may be allowed to live.

Now, I have given you such a lot about my children and myself but I must add that my wife whom I married in 1911 has been a real helpmate and pal throughout these years of activities and we live happily together. As soon as the youngest son is qualified and has done the necessary hospital appointments I hope to retire. My wife and I propose travelling about a good bit then and who knows but one day we might call on you at Rock Springs.

Hoping to hear from you again soon and with kind regards,

I remain,

Sincerely Yours

A. C. Schulenburg.
Alumni News

Drs. Robert J. Crossen, '25, J. B. Brown, '23, and Alfred Cone of St. Louis recently attended a medical meeting in Salt Lake City, Utah. While there they attended a luncheon for Washington University graduates and report a very good representation of Utah alumni present.

Wm. Vincent Guttery, '81, Middleton, Ill., celebrated his ninetieth birthday in May.

John Wehrly, '90, has been located at 624 N. Main St., Santa Ana, Calif., since 1901. He is still in active practice and has two sons, one a dentist, the other a doctor, who are now associated with him. Dr. Wehrly is coming East in the near future and is looking forward to meeting some of his old classmates at that time.

A clipping from the Albuquerque Tribune, Albuquerque, N. M., credits Dr. M. K. Wylder, '01 with the delivery of almost 10,000 babies in his thirty-eight years of medical practice there. This record is especially startling when it is known that this practice comprises only a little more than half of his work.

R. S. Weiss, '09, assistant professor of clinical dermatology, was the guest of the Massachusetts Medical Society at their 160th annual meeting in Boston, Mass. on May 21. Dr. Weiss spoke on the subject “Lupus Erythematosus” and also conducted a round table discussion on the treatment of the common skin diseases.

Among those entering medical school this fall is the son of Ray T. Woolsey, '16. Dr. Woolsey is located in Salt Lake City, Utah.

Carl M. Rylander, '27, has been in the medical corps of the army since 1927, and is now chief of the surgical service at Station Hospital, Camp Croft, S. C. Camp Croft will be a post of 18,500 troops when it is completed and is now in the process of organization. The hospital will have a capacity of 750 patients.

Roland F. Mueller, '29, is located in Two Harbors, Minn. with his practice limited to general surgery. Dr. Mueller is Chief Surgeon at Two Harbors Hospital and is surgeon for the Duluth Missabe & Iron Range R. R. A recent publication is “Treatment and End Results in Appendicitis.” Minn. Medicine, April, 1941, 24:243.

Donald T. Chamberlain, '30, has been called to active duty with the army medical corps and will be stationed at Lawson General Hospital, Atlanta, Ga. as gastroenterologist.

James P. Conway, '30, is practicing at 1800 East Capitol Drive, Milwaukee, Wis., and is instructor in medicine at Marquette University Medical School.

Edwin C. Schmidtke, '31, is now located in the Guitar Bldg., Columbia, Mo. This recent move necessitated Dr. Schmidtke's resignation of Secretary-Treasurer of the Alumni Association.

Virgil E. Jeans, '32, is on active duty at Station Hospital, Camp Haan, Calif., an anti-aircraft training center.

The engagement of Paul Kunkel, '34, and Miss Jane Bliss of Brookline, Mass. has been announced. Dr. Kunkel is associated with the Harvard Medical School.

Sheldon was married in 1937 and has one son, two and one-half years of age.

Frank H. Robinson, '35, is stationed at Camp Murray, Tacoma, Wash. Prior to his call to active duty in April he was associated with J. D. McCausland, '37, in general practice.

Warren B. West, '36, sends announcement of the birth of his son, Warren B. West, Jr., on March 17. It is interesting to note that Dr. West's father, Warren B. West (now deceased), received his M.D. degree from the Missouri Medical College in 1897. There is now the possibility of a third Warren B. West to receive a degree from Washington University Medical School. Dr. West has an office for the practice of radiology at 15 S. Race St., Urbana, Illinois.

Nelson Robert Saphir, '36, married to Grace Elizabeth McIntire, June 22. Dr. and Mrs. Saphir are residing at 48 Ocean Street, Squantum, Mass.

Lt. Thomas E. McMillan, '36, was recently called to active duty at U. S. Naval Hospital in Pensacola, Fla. Lt. McMillan was married November 30, 1940 to Miss Ida Ann Barnett of New Orleans, La.

Wayne Pickens McKee, '38, has an office for general practice in Gustyne, Calif.

Capt. Patrick M. Cockett, '39, is a surgeon in the Medical Corp of the U. S. Army, stationed at Burns Field, Kauai, T. H. He was married in December, 1939 to Miss Clella Clanahan, R.N., '37.

H. B. Clarke '40, is resident at Huntington Memorial Hospital in Pasadena, Calif.

In Memoriam

Calbert H. Beach, '89, Glencoe, Okla., died, March 15.


Max A. Goldstein, M.M., '92, St. Louis, Mo., died July 27; aged 71.

George Gorin, '95, St. Louis, Mo., died, June 27; aged 70.

William G. Harwood, M.M., '82, died, January 28; aged 84.

P. J. Heuer, '95, St. Louis, Mo., died, March 8; aged 69.

Harden T. Leach, '96, Elston, Mo., died, March 30; aged 76.

Bransford Lewis, '84, St. Louis, Mo., died, May 18; aged 79.

Ernest Oelfcken, '96, St. Louis, Mo., deceased.

George Parrish, '94, Los Angeles, Calif., died August 7; aged 69.

Squire H. Redmon, '80, Tipton, Mo., died, May 7; aged 86.

George W. Vinyard, '75, Jackson, Mo., died, July 2; aged 91.

Chauncey G. Wright, '05, St. Louis, Mo., died, June 10; aged 68.
1941 Graduates and Internships

NAME—HOSPITAL

Ahrens, Roy, Barnes Hospital, St. Louis
Albert, Bernice, St. Louis City Hospital, St. Louis
Bachwitt, David, Charleston General Hospital, Charleston, W. Va.
Bartels, B. Brandt, St. Luke's Hospital, St. Louis
Baughman, Jack L., Colorado General Hospital, Denver, Colorado
Beatty, John H., City of Detroit Receiving Hospital, Detroit, Michigan
Beine, William R., General Hospital of Fresno County, Fresno, Cal.
Bernstorf, Philip W., Cincinnati General Hospital, Cincinnati, Ohio
Black, Thomas, St. Louis Children's Hospital, St. Louis
Blackburn, Cecil, Hillman Hospital, Birmingham, Alabama
Bohnert, Earl, St. Louis City Hospital, St. Louis
Bramwell, Donald M., Emanuel Hospital, Portland, Oregon
Buckner, Robert C., Kansas City General Hospital, Kansas City, Mo.
Callaghan, Thomas, St. Luke's Hospital, St. Louis
Canaga, Bruce, U. S. Naval Hospital, San Diego, California
Caraco, Henry H., Cedars of Lebanon Hospital, Los Angeles, Cal.
Chalkley, Judson, Kansas City General Hospital, Kansas City, Mo.
Connolly, Randall, St. Joseph's Hospital, Parkersburg, West Va.
Cook, Robert Jerome, St. Louis Hospital, St. Louis.
Cross, James H., Research & Educational Hospital, Chicago, Ill.
Dickerson, Robert B., U. S. Marine Hospital, Seattle, Washington
Dills, Joseph N., Charity Hospital of Louisiana, New Orleans, La.
Ellis, Calvin, Henry Ford Hospital, Detroit, Michigan
Ellman, Alexander, Jewish Hospital of Brooklyn, Brooklyn, N. Y.
English, Milton T., Missouri Baptist Hospital, St. Louis
Erganian, Jane A., Department of Pathology, Washington University
School of Medicine, St. Louis
Ferguson, Wilson J., St. Luke's Hospital, St. Louis
Fildes, Charles E., Research & Educational Hospital, Chicago, Ill.
Finkel, Barney W., St. Louis City Hospital, St. Louis
Fleming, Peter Donnell, Deaconess Hospital, Cincinnati, Ohio
Franklin, H. Charles, U. S. Marine Hospital, Staten Island, New York
Garretson, Kirk D., St. Luke's Hospital, San Francisco, California
Glaser, Joseph L., St. Louis City Hospital, St. Louis
Gollub, Samuel W., Jewish Hospital of St. Louis, St. Louis
Graybill, J. Gilbert, Uniontown Hospital, Uniontown, Pa.
Green, Ray E., Salt Lake General Hospital, Salt Lake City, Utah
Guterman, Henry S., Michael Reese Hospital, Chicago, Illinois
Hagood, Robert B., T. C. I. Hospital, Fairfield, Alabama
Hall, Lillian Mae, Baltimore City Hospital, Baltimore, Maryland
Harsh, Ralph, St. Louis Maternity Hospital, St. Louis
Hayles, Alvin B., St. Louis City Hospital, St. Louis
Hertz, Sylvan, Beth Israel Hospital, New York, New York
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