employ anteroposterior urethroscopy for foci of infections involving the urethral follicles and crypts, prostatic ducts, strictures, seminal vesicals and the prostate. Should such a method of examination fail to establish a cure, our last and final resort is hyperpyrexia.

The tests* to determine the curability of gonorrheal urethritis are the passage of a sound, prostatic massage, centrifuged morning specimen of urine, the complement-fixation test, and culture.

The importance of this system of treatment will be stressed in a paper to be published at a future date, comprising the results of two hundred cases of of acute gonorrheal urethritis treated with sulfanilamide, neoprontosil, sulfapyridine, and uliron sodium.

453 Flood Building.

HERMAN FEINBERG,
San Francisco.

POTENTIATED PAN-INFLUENZA VACCINE

Horsfall and Lennette,[1] of the International Health Laboratories, New York, report the discovery of a "duplex" vaccine equally effective against all types of influenza virus. The new synergic vaccine is a basic challenge to immunologic theorists, and may eventually lead to effective clinical mastery of this disease.

During the course of certain experiments, four presumably normal ferrets were inoculated intranasally by the New York investigators with multiple doses of their 1939 strain of the influenza virus. All four developed typical symptoms of experimental influenza. During convalescence, however, they began to manifest evidence of a secondary, distemper-like infection, from which one died and the remaining three were killed on the eleventh day. To prevent the possible spread of the epizoötic to the normal ferret colony, a formalized vaccine was prepared from the lungs and spleens of these four animals and two cubic centimeters of the 1:1000 formaldehyd extract injected subcutaneously into each of the 157 normal ferrets. Such formalized vaccines had been found effective in preventing the spread of distemper on previous occasions.

Two days after giving this formalized vaccine, three groups of vaccinated normal ferrets were inoculated intranasally with 1,000 infectious units of three antigenically different[2] strains of the influenza virus. To their surprise none of these vaccinated ferrets developed influenza. Serum drawn from control vaccinated ferrets neutralized all three strains of influenza virus in high dilution. (Ferret serum is normally nonvirucidal.) These findings suggested that the formalized distemper vaccine had, in some wholly unexpected way, actively immunized the ferrets against at least three antigenically different strains of the influenza virus. At the same time the vaccine had rendered the ferrets relatively immune to canine distemper.

In order to reproduce this pan-immunizing vaccine, formalized vaccines were prepared from normal ferrets infected with influenza virus, or with distemper virus. The two vaccines, mixed *in vitro,* failed to stimulate the development of an active influenza immunity. In a second attempt, ferrets were inoculated simultaneously with influenza and distemper virus, and formalized vaccines prepared from their doubly infected lungs and spleens. Most of the duplex vaccines thus prepared proved to be ineffective. By varying the dosage and time interval between injections, however, a number of fairly effective synergic vaccines were eventually prepared. Because of the number of variables in the production of such synergic vaccines, much more work will have to be done before successful "binomial" vaccines can be regularly reproduced.

No theory of virus or antigenic potentiation has thus far been suggested by the New York investigators to account for their observed results. The work is of basic clinical interest, however, since it suggests that an effective pan-immunizing influenza vaccine is theoretically possible. If this hope is realized, the observations of Horsfall and Lennette may eventually be recorded as the most important basic medical discovery of the present generation.

P. O. Box 51.

W. H. MANWARING,
Stanford University.

DEATH FROM SULFANILAMIDE: A CALIFORNIA COURT DECISION

Physicians and a clinic were absolved from liability for a death due to sulfanilamide, and a precedent was established by a medical legal opinion given on January 10, 1940 by Superior Court Judge Clement L. Shinn in Los Angeles.

A white male patient, suffering from an acute specific infection, was treated with sulfanilamide at a venereal disease clinic for a period of five weeks. Subsequently he developed complications from the use of the drug and died. A malpractice suit was instituted against the physicians and the clinic, and following is the opinion of the Court:

This young man was being given a dangerous drug. He was not being treated for a consideration; he was being treated for his own good by an experienced doctor—a man who appears to me to be a competent and conscientious man. There are, of course, recognized and unavoidable dangers in certain types of treatment, and physicians as a rule do their utmost to minimize these dangers. The medical profession has to progress, not for its own good, but for the good of humanity, and types of treatment which are efficacious cannot be abandoned because they are not utterly safe. Accidents will happen. Here was a young man who fell in that indeterminable class who cannot tolerate or handle this drug in considerable quantities. It does not appear that there was any way for the medical profession to tell who could or could not handle the drug except by using it and watching the results; and when they tried it out on this patient they were not doing wrong by him. If they had been successful, it would have changed his entire life. He certainly was leading a miserable existence the way it was. He had had other treatment. It may be that this remedy was the only one that would have reached his case. We don't know about that. He did what appeared to be the right thing in going to the clinic and submitting to the treatment. The drug was not given in excessive quantities. The young man was given printed

* Feinberg, Herman: Tests to Determine the Curability of Gonorrheal Urethritis, Calif. and West. Med., 46:6 (Jan.), 1937.

1 Horsfall, Frank L., Jr., and Lennette, Edwin H., Science, 91:492, (May 2), 1940.

2 Horsfall, Frank L., Jr., and Lennette, Edwin H., J. Bact., 39:56, 1940.

instructions, advising him to watch for certain enumerated manifestations of ill effects. These instructions had been carefully prepared by competent authorities, and listed the unfavorable reactions that were known at that time. He was instructed to report to the doctor immediately upon the discovery of any of these symptoms, and he was an intelligent young man. Once a week he was examined, and tests which were generally used by the profession at that time were made. No evidence of unfavorable reaction occurred until the end of the fifth week, at which time the treatment was stopped. It appears from the evidence that the treatment was administered scientifically and carefully, and that the results which followed could not have been anticipated. The treatment was proper under all of the circumstances. The unfortunate consequence was not the result of negligence.

Judgment will be for the defendants.

State Building.

MALCOLM H. MERRILL,
San Francisco.

Knowledge of disease has now advanced so far that it is very often desirable to treat the patient before he knows that he is sick. People stricken with acute disease hasten to their doctor for aid. Those suffering from a chronic disease of insidious onset tend to put off their visit to a doctor and to seek relief by self-treatment. Yet we know that, in many diseases, the best hope for cure depends on early treatment, treatment even before the symptoms appear. This is not only true of tuberculosis, but of several other diseases, including the two at the top of the list of causes of death, cancer and heart disease. It is true of diabetes, of many cases of syphilis, and of certain kidney diseases which though so slight as to be overlooked may cause high blood pressure later on. An attempt has been made by the American Medical Association to adjust the private practice of medicine to this situation, but periodic medical examinations have not been widely accepted.—J. Rosslyn Earp, M. D., *Health News,* May, 1940.

Two American Physicians Are Honored by Special Postage Stamp Issue.—The benevolent character of the service which physicians give to suffering humanity is typified by the general practitioner of medicine and the army medical officer thus memorialized, *The Journal of the American Medical Association* says, in commenting on an announcement by the Post Office Department that the late Major Walter Reed, M. D., of the Army Medical Corps, and Crawford W. Long, M. D., of Georgia, will be among those honored in a famous American series of postage stamps to be issued soon.

"Although other names might well have been added to this brief list, no one will deny that the two selected fully merit this honor," *The Journal* says. "Our Eastern shores and many of our cities were invaded some ninety-five times by yellow fever before Doctors Reed, Carroll, Agramonte, and Lazear conducted experiments in Cuba which demonstrated that yellow fever is transmitted by the bites of certain species of mosquitoes. Yellow fever had been present in the Western Hemisphere for at least three hundred years and had caused tens of thousands of deaths. Following this discovery by Walter Reed and his associates in 1900, yellow fever soon disappeared from North America and has never returned. Dr. Crawford W. Long, a general practitioner of medicine, on March 30, 1842, first used sulfuric ether as an anesthetic during the performance of a surgical operation. Doctor Long performed this operation on James M. Venable in Jefferson, Jackson County, Georgia, a small town then many miles from a railroad."

The Journal called attention last year to the disparity between the number of physicians in other countries who had been honored by special issues of postage stamps and the number so honored in the United States.

ORIGINAL ARTICLES

GAS CHANGES IN MATERNAL AND FETAL BLOOD DURING CYCLOPROPANE OBSTETRIC ANESTHESIA*

By E. A. ROVENSTINE, M. D.
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AND
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MORE than ninety-three years have passed since the first obstetric anesthesia. During all of this time there has been a constant search for the ideal anesthetic, or analgesic drug, to relieve pain associated with childbirth. The lack of agreement in the voluminous literature that has been accumulated on the subject is evidence that the search must go on.

In nearly a century of experimenting, many drugs have been recommended enthusiastically and many unwarranted claims have been made, but no drug is definitely established today as being superior to all others. In fact, it is not unreasonable to cast considerable doubt on any claim that there is a safer drug available than ether, which Simpson gave during the first obstetric delivery with anesthesia.

Other surgical procedures have been more fortunate in so far as efforts to improve anesthesia for their more satisfactory and convenient completion are concerned. But it is not strange that obstetric anesthesia has not kept pace with other advances in the specialty. The obstetrical patient presents certain problems that are apart from those of surgery in general. Firstly, there are the lives of two individuals to be considered when anesthetic drugs are administered during childbirth. This, in itself, would not be greatly significant were it not true that in one of them the physiological relationships are not only decidedly different, but are poorly defined. Secondly, the physiology of the pregnant uterus is readily influenced by drugs administered to relieve the pains associated with its contractions. Thirdly, physiological variations from the normal female are always encountered to complicate the whole procedure.

When maternal welfare is placed above that of a nonviable fetus, no more perplexing problems are presented than are regularly encountered with surgical anesthesia. Fortunately, these cases are rare. Most often the efforts at maternal pain relief must be made with the more important consideration of delivering an uninjured fetus.

All drugs producing analgesia or anesthesia must, in some way, alter or interrupt the processes of cell metabolism. This alteration, if carried out to a certain degree, results in irreversible cell activity. Therefore, no drug for this purpose falls without the classification of a protoplasmic poison.

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* Read before the joint meeting of the sections on Anesthesiology and Obstetrics and Gynecology of the California Medical Association at the sixty-ninth annual session, Coronado, May 6-9, 1940.

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