nancy" as an entity will depend upon a more extensive knowledge of the biochemistry of the pregnant woman than exists at the present time.

A recent patient under my care is of particular interest. She was observed during three pregnancies and deliveries. In all of the pregnancies she showed evidence of toxemia, with no evidence of kidney insufficiency after the first or second. Late in the third pregnancy she developed convulsions and died shortly after delivery. At autopsy the kidneys were found to be quite normal, but the liver showed the hemorrhagic lesions characteristic of eclampsia. The findings suggest the possibility that an eclamptic toxemia might have been present in three successive pregnancies without producing chronic kidney change, or there still remains the possibility that the first and second pregnancies were associated with some other form or forms of toxemia neither eclamptic nor nephritic, but of some type which will only be understood when our knowledge of the chemical processes in the body of the pregnant woman are more thoroughly understood.

The infinite number of biochemical variations possible during pregnancy which might result in an intoxication of the patient would seem to make it probable that there may be a number of different toxemias, of which eclampsia, with its specific pathological lesions in the liver, is only one example, and it is conceivable that a patient might experience a different toxemia with each of successive pregnancies, none of which necessarily showing marked or permanent kidney symptoms.

ALFRED B. SPALDING, M. D. (Stanford Hospital, San Francisco)—Doctor von Geldern is to be congratulated for presenting so clearly a survey of the American literature in regard to clinical observations so far made in a few clinics on recurrent toxemia of pregnancy. I would like to emphasize the difficulties that are met with in successfully conducting a follow-up clinic for pregnancy patients. Because of the expense associated with such work, only a few clinics can even partially carry on this work. I think here is where some good work can be done by public health nurses to help private doctors to educate their patients to the needs of study after a toxic pregnancy. While we know very little about toxemia of pregnancy, it seems justifiable to agree with Von Geldern that a considerable number of pregnancy toxemias recur in subsequent pregnancies and that many of these are complicated by chronic nephritis. I would like to emphasize the prognostic value of quantitative renal function tests such as have been conducted at Stanford University School of Medicine for a number of years by Thomas Addis. With a kidney function test normal a year after delivery, it is justifiable to advise such a patient to again attempt pregnancy, provided she can have careful prenatal care. Where the late kidney function test shows persistence of kidney damage, the prognosis of future pregnancies is very grave.

Many doctors think that they lose patrons by adopting business methods in the collection of bills for professional services rendered. As a matter of fact the contrary is the case. Prompt payment makes friends, and slow payment often makes enemies. Seldom, if ever, does a reputable doctor fail to extend appropriate leniency to the deserving poor, but there are very few people who cannot afford to pay something, be the amount ever so small. It would be far better for those in moderate circumstances, if their self-respect is to be preserved, if given an opportunity to pay within their means.—J. Indiana M. A.

Educators are quite generally agreed these days that health should be given most importance in the school curriculum. At the same time some of them point out that health is something we cannot define. In a way health cannot be defined, but neither can we define life, and we are constantly revising our notions about such fundamental phenomena as matter and energy. Even when we work out our definition of health it does not apply specifically as does a definition of electricity or of ether, for the health of one person is by no means the health of another.—M. J. and Record.

ANTI-SCIENTIFIC PROPAGANDA

By PETER FRANDSEN *

THIS country seems to be especially favored in the development of all sorts of pseudo-scientific cults and anti societies. The anti-vivisectionists have been with us for a long time, but lately their strength, or at least their noise, has been increasing. The anti-vaccinationists seem to be getting more noisy, and they have succeeded in overturning legislation designed to control the spread of smallpox in several states. In Minnesota, since 1903, they have prevented the enactment of contagious disease control legislation. It is not surprising then that that state should have a record of 9000 cases of smallpox in 1921. Massachusetts, with a compulsory vaccination law, has not had more than forty cases annually since 1917. California repealed its compulsory vaccination law, and had over 5000 cases that year. Connecticut, Montana and other states have weakened their state laws because of the influence of the anti-vaccinationists. Is it any wonder that smallpox is one thousand times more prevalent in Montana than in Massachusetts in proportion to population, and that the rate in California is fourteen times as great as it is in Japan?

Pseudo and unscientific cults are springing up and finding it easy to get a hold on the popular mind, and are making some headway in establishing themselves on an equally recognized basis with scientific medicine. The legislature of West Virginia in 1925 passed an act recognizing naturopathy and chiropractry as accredited forms of healing. In most states, religious healers, neuropaths, psychopaths, herbalists, food fad healers, as well as osteopaths and chiropractors, find little difficulty in practicing on patients for all sorts of human ailments. While all these antis differ in their origin and propaganda, they are alike in that they are an attack upon the scientific methods not alone in medicine but in all fields of knowledge. The anti-evolutionists have at least made a fair start, and what they may yet accomplish in legislation affecting the teaching of theories based upon scientifically observed facts remains to be seen. This movement may easily extend itself to other matters than the question of man's origin.

What are the reasons for all this anti propaganda and its success? How may its capacities for harm be counteracted? are questions that call for an answer from those trained in scientific methods. Some of the propagandists are fanatics whom we will always have with us, but a substantial percentage of their followers are intelligent men and women. Some have an exaggerated notion of what they call personal liberty and the right to their own beliefs; others are sentimentalists in their attitude toward animal life as compared wth human life. The new schools of healing find a listening ear in their appeals to prejudice and ignorance, the human love

* **Peter Frandsen** (University of Nevada, Reno, Nevada). A. B., A. M. Harvard University; LL. D. University of Nevada. Appointments: Professor of Biology, University of Nevada; Advisor to Pre-Medical Students. Publications: Topical Outlines of General and Personal Hygiene; Laboratory Guides for General Zoology and Physiology, published by University of Nevada. Several papers in scientific literature, including Reactions of Limax Maxemus.

of the mysterious, their deliberate misrepresentation of the facts and their clever advertising methods. When forced to defend their positions they point to medical and scientific mistakes of the past. Bleeding was once a universal medical practice, malaria was thought to be caused by bad air. The germ theory of disease is just another guess; vaccination and serums are only a present-day fad. Such is the gist of their argument. I suppose a majority of our scientifically trained physicians of today will agree with Hippocrates in his estimate that seven out of every ten patients who recover would recover without any special treatment. Therefore, the most that any form of treatment can claim is 30 per cent of the cures effected. The other 70 per cent can be accredited to whatever cults are smart enough to catch the patient's fancy. Since many recoveries are slow, and humanity impatient, some of the 30 per cent may give the credit to one of the quacks they may consult after the educated doctor appears to have failed.

No scientist believes that the knowledge he possesses is complete. He knows that present-day theories and practices may have to be changed in the light of new truths discovered tomorrow. What he does have lasting faith in is the scientific method which bases its practice on the most painstaking observation re-enforced by carefully controlled and rigidly analyzed experiment. The pseudo-scientific guesser creates a plausible theory out of gossamer stuff undisturbed by any facts, and relies for his arguments on superficial analogies or some mystical belief. Until recently the scientific worker has not troubled himself much about this popular propaganda. He has assumed that the facts would eventually speak for themselves. But sometimes good causes may fail or be seriously crippled for lack of aggressive championship, and it was the realization of this fact that led to the organization of the American Association for Medical Progress.

In November, 1921, the New England Anti-Vivisection Society held a convention in Boston. There was a large attendance of interested people. Many of them were startled when they were told that research institutions like the Rockefeller Foundation were only worthless establishments for practicing cruelties on helpless animals; that men known to and respected by the audience were monsters of cruelty; that modern methods of curing and preventing disease were only means to fill the pocketbooks of an organized medical trust. Speakers told them that vaccination was the pouring of diseased pus from a sick cow into the child's blood. So vicious was the propaganda, that a group of the attending laymen were aroused to organize for the purpose of combating the promulgation of these and other untruths. It was first called the Society of Friends of Medical Progress, became active in 1923, and in 1924 changed its name to The American Association for Medical Progress.

The purpose of the organization is to inform the public of the truth regarding the value of scientific methods of research to human and animal welfare; to combat legislation dangerous to health; to aid in securing desirable legislation; to see to it that high standards for the practice of the healing art are adopted and enforced in order to protect the ignorant and helpless from the predatory quack and impostor. In the two years of its existence this association has published many well-written pamphlets, and has had representatives at conventions and public gatherings in many states. Why should a lay organization take the promotion of medical progress upon its shoulders? Why should not the medical profession be organized for this purpose? If it did so the anti-propagandists would foster the public suspicion that it was inspired by selfish motives and was seeking to make its own stronghold impregnable. Such a charge cannot be as effectively brought against a lay organization. Moreover the informed layman has the chief responsibility in the matter because it is he and his family that will have to suffer if medical progress is impeded, and it is the public that will have to pay the bills.

Needless to say, the society asks and needs the co-operation of practicing physicians and other scientists in arresting these destructive anti-forces. Much can be done in the schools to educate the younger generation, but there will always be a large section of the public, reachable only through the public press, public gatherings, and the individual contacts between physician and patient. To what extent can the medical profession aid in safeguarding the scientific method?

One of the reasons the antis are so successful is that they talk in a language the man on the street can easily understand. The charlatan has a simple, plausible explanation for things that are not so easily explained in a scientifically accurate way. Most of the common people look upon the doctor with awe mingled with fear. He is a man of mysterious knowledge and possesses a power beyond their comprehension. Unfortunately there is a temptation to foster this attitude on the part of some by employing highly technical terms in dealing with patients and relatives. The Latin prescription helps to mystify still more. Is it any wonder that the puzzled patient becomes interested in the simpler explanation of the pseudo-scientist or that he can be made to believe that technical descriptions and Latin prescriptions are a device to conceal ignorance, as they sometimes may be?

The average person, in things medical, is like a little child in his first questions about the world in which he lives. He asks his elders puzzling questions. The shortest way out is to tell him that he is too little and too ignorant to understand. The second way is to invent some simple fairy tale explanation, such as the stork bringing the baby down from heaven. This satisfies for a time, but the deception may destroy confidence later on. If we try to tell the child the whole truth we bewilder him and he will not ask again. The hardest but best plan is to answer him truthfully, without concealment, in the simplest terms, and to go no deeper into the subject than will satisfy his immediate needs. The relations between doctor and patient would certainly be strengthened if the former would make himself a good teacher. By taking pains to explain the principal facts, by helping the patient

to follow his own reasoning, by pointing out the possibilities for harm, especially in imperfectly developed new lines of treatment, he may save the patient from the clutches of the modern quack who advertises serums and gland preparations as cure-alls.

In times of epidemics, well-written accounts of the situation, with suggestions and advice to the public such as the Nevada Hygienic Laboratory has been putting out during the past year, will do much in answering questions and creating confidence. Health meetings, with addresses in nontechnical terms by competent speakers, also are of recognized value in educating the public. Would it not be a good plan for the local and state medical societies to regularly have some one of their meetings especially arranged for the public? At such a meeting the progress of medicine could be presented in such a way as to make many new friends to the cause of medical progress. In short, the more scientific men can take the public into their confidence, and the less they shroud their activities in a veil of technicality or aristocratic seclusion, the better it will be for the safety of scientific methods and the welfare of the race.

To the steadily increasing number of pharmacists who are handling biologics, and who realize the rapid growth of the tendency of the medical profession to employ these therapeutic agents in their practice, the announcement that the United States Public Health Service has issued to E. R. Squibb & Sons the first license ever granted for the manufacture and sale of Erysipelas Antitoxin is of the utmost importance. The fact that approximately 3000 deaths are caused annually by erysipelas and that thousands of other cases are under treatment emphasizes the vital importance of Erysipelas Antitoxin (Squibb) as a scientific attainment and as an ally in offsetting the ravages of this dread disease. From a commercial viewpoint the offering of this new antitoxin affords the pharmacist additional opportunity to co-operate with his physicians and to develop his business along strictly professional lines and in a highly profitable manner. Erysipelas Antitoxin (Squibb) is marketed under an exclusive license from the School of Medicine and Dentistry of the University of Rochester, Rochester, New York, and is prepared according to the principles developed by Dr. Konrad E. Birkhaug of that institution. The license provides, among other things, that samples of each lot of Erysipelas Antitoxin (Squibb) must be submitted to the University of Rochester for test and approval before distribution. This control is in addition to that made in the Squibb Biological Laboratories and constitutes an added guarantee of the potency of the antitoxin. The control by a laboratory outside of the Squibb organization is of particular importance in the case of Erysipelas Antitoxin because the Hygienic Laboratory of the United States Public Health Service has not established any standard of potency and does not recognize "units" of potency. Erysipelas Antitoxin (Squibb) is supplied in concentrated form only, and will be distributed only in syringe packages, containing one average "Therapeutic Dose."

Is it not stimulating to us who are interested in hospitals as instruments for the furtherance of human welfare that these institutions are now permitted to share in the great advances that are being made and that are likely to be made in the future? Until recent years, while the hospitals were appreciative of the contributions which their physicians made to medical progress, yet, as organized institutions, the hospitals themselves played little part in these advances; but now they stand beside the universities and the scientific institutes in educating physicians and in advancing medical science.—Rufus Cole, Science, August 6, 1926.

RECENT STUDIES IN SCARLET FEVER

By Emil Bogen *

(From the Contagious Division Service, Los Angeles General Hospital)

The modern conception of scarlet fever is that it is an acute infectious disease caused by certain strains of the streptococcus hemolyticus. The usual site of the infection is in the nasopharynx, but it may find entry also through wounds or other portals, and may become secondarily localized in the glands, ears, kidneys, or other organs. It is characterized partly by the symptoms produced by the local infection, but especially by the general systemic effects produced by the circulating soluble toxin, which is generated by the organisms at the local site of infection and disseminated through the blood stream to all parts of the body. It is the toxin that gives rise to the exanthem, the fever, the toxemia, and the other general symptoms of scarlet fever. Antitoxins are produced in the body of the patient, which can entirely neutralize the effect of the toxin and thus produce a permanent immunity to reinfection with scarlet fever. About two-thirds of the population not previously attacked by scarlet fever contain such antitoxin in their tissues. Its presence or absence can be detected by means of the Dick test. The toxin can be neutralized locally, as in the Schultz-Charlton test, or systemically, as in the serum therapy of scarlet fever, by the injection of antitoxin secured from convalescent patients or from horses immunized according to the methods of Moser, Dochez or Dick, but we are unable as yet to prevent the development of complications. Active immunization by means of vaccines and toxins is being attempted, but so far has not been an unqualified success. Our experiences at the Los Angeles General Hospital have been in complete accord with this conception, and lead us to expect that it will not be long before scarlet fever may be completely brought under control.

Discussion *by J. E. McKillop, Oscar Reiss, J. D. Dunshee, Rogers F. Wakefield, Los Angeles.*

SINCE 1885, when Klein described the streptococcus scarlatinae as the cause of scarlet fever, hemolytic streptococci have been frequently found in the nasopharynx; in the blood and urine and in the discharge from the ears of patients suffering from scarlet fever. These bacteria have also been found in local wounds in wound scarlet; in infected burns in burn scarlet; in the lochial discharge in puerperal scarlet; in the milk in a milk-borne epidemic, and in every possible relationship to this disease. Yet only three years ago Hektoen showed in an exhaustive historical survey that Koch's third postulate had not yet been met by the experimental production of scarlet fever in man or in animals by the inoculation with a pure culture of streptococci. Moreover, the work of the Italian investigators, Caronia, Di Christina, Sindoni, Vitelli, Ritossa, and others during the past few years pointed almost as clearly to an anaerobic diplococcus as the cause of this disease.

At last, after a series of brilliantly persistent studies extending in unbroken line for over a decade, George F. and Gladys H. Dick of Chicago in 1923 succeeded in producing typical scarlet fever in a number of human subjects by inoculations with cultures of a specific strain of hemolytic streptococci isolated from a scarlet fever patient. They then developed a method for testing the susceptibility of an individual to scarlet fever, thus furnishing an explanation to the failures of so many previous at-

---

* **Emil Bogen** (1100 Mission Road, Los Angeles). M. D. University of Cincinnati. Hospital Connections: Los Angeles General Hospital. Publications: "Clinical Test for Liver Function; (Journal of Laboratory and Clinical Medicine," 1923); "Pneumonic Plague in Los Angeles" (California and Western Medicine, 1925).