having resigned as physician at the Cheney Silk Mills at South Manchester, Conn., is the new assistant professor of industrial hygiene now engaged in the development of an occupational disease class at the Vanderbilt Clinic.

AT the University of Pennsylvania the following promotions are announced in the mathematics department: Dr. M. J. Babb from assistant professor to professor; Dr. J. D. Eshleman from instructor to assistant professor, and N. E. Rutt from assistant to instructor. New appointments are: Dr. P. A. Caris, assistant professor; W. A. Bristol, instructor; H. M. Lufkin, instructor, and M. Brooks and L. Zippin, assistants.

AT Yale University Dr. William Clark Trow, associate professor of educational psychology at the University of Cincinnati, has been appointed visiting professor of educational psychology; Edward A. Bott, associate professor of psychology in the University of Toronto, visiting associate professor of psychology, and Dr. Barnett Fred Dodge, formerly of the Massachusetts Institute of Technology, assistant professor of chemical engineering.

DR. HAROLD HIBBERT, professor of industrial chemistry at Yale University, has been appointed to the professorship of cellulose chemistry at McGill University, Montreal.

DR. L. R. CLEVELAND, National Research Council fellow in zoology at the Johns Hopkins University, has been appointed assistant professor of protozoology in the department of tropical medicine at the Harvard Medical School.

DR. HARLEY E. FRENCH, formerly professor of anatomy and dean of the school of medicine of the University of North Dakota, has been appointed assistant professor of anatomy in the University of Pennsylvania School of Medicine.

DR. ALEXANDER LOW, reader in embryology, attached to the anatomy department, Aberdeen University, has been appointed Regius Professor of Anatomy in that university in place of Professor Reid, resigned.

DISCUSSION AND CORRESPONDENCE

TRYPARSAMIDE

A RECENT issue of SCIENCE (September 18, 1925, lxii, 251) contained an article by Professor Chauncey D. Leake, of the University of Wisconsin, in which he relates the history of a cooperative organization composed of members of the faculties of the University of Wisconsin and Northwestern University and others associated with them. Referring to the achievements of this organization, Professor Leake mentions (page 255) "the finding that tryparsamide . . . is of great value in the treatment of syphilis of the central nervous system" as "the most important achievement of this cooperative research which has been published to date." He prefaces his account of this achievement by saying that it "has been heralded as the greatest advance in the therapy of syphilis since Ehrlich introduced salvarsan." In recounting "the steps leading up to this discovery" Professor Leake makes the unqualified statement that "Ehrlich's preparations (arsphenamine and neo-arsphenamine) are of no value in neuro-syphilis" and he makes it appear that the "finding" referred to above was the result of chance studies of drugs that "had been discarded for use in general types of syphilitic infections" based on certain theoretical conceptions of Professor Loevenhart and Professor Lorenz and refers to tryparsamide specifically as "among such substances."

For the benefit of the readers of SCIENCE, it should be pointed out that the statements made by Professor Leake concerning the importance of tryparsamide and the value of the arsphenamines in neuro-syphilis are not representative of current medical opinion; furthermore, his version of the events leading to the discovery of the therapeutic value of tryparsamide in neuro-syphilis is a novel one and does not agree at all with the brief but clear statement given in the first four paragraphs of the paper by Lorenz, Loevenhart and their associates[1] or with the more detailed account given by Brown and Pearce,[2] who studied the action of tryparsamide in animals and conducted the preliminary clinical investigations which formed the basis of its application to neuro-syphilis as stated by Lorenz, Loevenhart, Bleckwenn and Hodges.

There are few, if any, syphilologists who would subscribe to Professor Leake's statement concerning the lack of value of the arsphenamines in neuro-syphilis. On the contrary, these drugs are generally regarded as the most effective therapeutic agents that are available for the treatment of most forms of neuro-syphilis and as of some value in all forms of the disease.

Tryparsamide is still used less extensively than the arsphenamines and its usefulness in neuro-syphilis appears to be more restricted. In the present state of our knowledge, no final judgment of its value can be made, but the consensus of opinion among those who have investigated this subject is that tryparsamide is of great value in properly selected cases and

[1] Lorenz, W. F., Loevenhart, A. S., Bleckwenn, W. J., and Hodges, F. J., *J. A. M. A.*, 1923, May 26, lxxx, No. 21, 1497–1502.

[2] Brown, Wade H., and Pearce, Louise, *J. A. M. A.*, 1924, Jan. 5, lxxxii, 5–9.

even now it occupies an important position among the remedies that are available for the treatment of neuro-syphilis. Professor Leake's enthusiastic estimate of its value may be prophetic but can not be accepted as an accomplished fact.

Finally, there is some doubt as to whether one would be justified in referring to the results of the clinical investigations carried out at the University of Wisconsin as an "achievement of this cooperative research." All the work on which the application of tryparsamide to the treatment of neuro-syphilis was based was done by an independent group of workers; the study of tryparsamide by Lorenz, Loevenhart and their associates was not in any sense a chance study of "arsenical compounds which had been discarded for use in the general types of syphilitic infection," but this study was undertaken in response to a specific suggestion based on the results of laboratory and preliminary clinical investigations. The connection of the Wisconsin group of workers with the development of tryparsamide was, therefore, essentially the same as that of Alt and other clinicians with the development of salvarsan in that they were given the opportunity of carrying out one phase of the clinical investigations necessary to the determination of the probable therapeutic value of tryparsamide.

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IMMUNITY TO TUBERCULOSIS BY THE INJECTION OF EXTRACT OF HEART MUSCLE

THE article by Professor Elliott C. Prentiss in the issue of SCIENCE for July 31 prompts me to make a brief report of some experimental work undertaken a goodly number of years ago, but for various extraneous reasons never carried to completion. In my work as pathologist to the Philadelphia General Hospital and to the University Hospital, I was struck by the rarity, in fact, the virtual non-occurrence, of tuberculosis of the heart muscle. This seemed to me to have but one of two explanations: (a) that the activity of the intracardiac circulation was such that the tubercle bacillus had no chance to lodge; (b) that the immunity of the myocardium was due to a biologic property, to some antituberculous substance in the muscle. Assuming that the latter was the more probable reason, I undertook a series of experiments in which I made extracts of beef's heart and mixed the filtrate obtained with virulent tubercle bacilli and injected the suspension into guinea pigs. In this work I had the help of Dr. Karl F. Meyer, now of California. It seemed to me that the material had a distinct inhibitory influence. Unfortunately, Dr. Meyer left Philadelphia for his new field, while my own work in clinical medicine and teaching came to absorb nearly all my time. I have proposed a repetition of the experiments to several men whose facilities and opportunities for research of this character were greater than my own, but so far no one has begun to work actively upon the problem.

If the immunity of the heart muscle and of the skeletal muscles is, as I believe, biological rather than mechanical, then it may be possible to extract an active agent by suitable means. In my own experiments pieces of heart muscle were cut up into small fragments under aseptic conditions and the fragments put into a grinding machine with china balls. The juice was then pressed out under great pressure and finally filtered through a Berkefeld filter. The filtrate, a golden colored liquid, was then used for the experiments. It is highly probable that the procedure could now be greatly simplified.

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A COMBINED CULTURE MEDIUM AND INDICATOR FOR PARAMOECIUM

IN the April 10, 1925, issue of SCIENCE, Bragg and Hulpieu describe the effect of a stain obtained from red cabbage leaves as an indicator of the acidity of the food vacuoles of Paramoecium. I have been unable to secure similar satisfactory results with the races I am using, but have found that a dilute infusion of red cabbage leaves (about 30 grams to one liter of water) is an excellent medium in which the animals not only reproduce rapidly but at the same time the color of the infusion indicates the chemical condition of the culture. When fresh, the cabbage leaf culture medium is light reddish purple in color, but about twenty-four hours after being seeded with Paramoecium, it turns red, indicating the formation of acid. In four or five days to two weeks, as the paramecia increase in number, the medium gradually becomes alkaline, as is shown by its change of color to green.

The culture, as far as quantity of paramecia is concerned, is at its height when it becomes a brilliant green and has lost its early turbidity. The behavior of the cultures can be varied considerably by adding a trace of sodium bicarbonate or a weak acid. In from one to two months, the culture becomes the color of an old hay infusion, fails to react to acids or alkalies and the paramecia have either wholly or almost wholly died off.

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