lecture was "Twenty-Four Years' Experience with Tropical Diseases."

THE American Association of Civil Engineers held a joint meeting with the Engineering Institute of Canada at Niagara Falls, Ontario, from October 13 to 15.

THE thirty-first National Safety Congress and Exposition of the National Safety Council will be held in Chicago from October 27 to 29 under the presidency of Colonel John Stillwell.

THE new laboratory of electroencephalography at the School of Medicine of Stanford University was opened on October 8.

APPLICATIONS for research fellowships in medicine, dentistry and pharmacy in the University of Illinois are being considered for the year beginning on September 1, 1943. Appointments to these fellowships will be announced on January 1. Candidates must have completed a training of not less than eight years beyond high-school graduation. The fellowship carries a stipend of $1,200 a calendar year with one month's vacation. Application blanks and further information may be secured from the secretary of the Committee on Graduate Work in Medicine, Dentistry and Pharmacy, 1853 W. Polk Street, Chicago, Ill.

Museum News states that the Museum of Comparative Zoology, Harvard University, will discontinue with Volume 55 the memoir series of the museum, which was begun nearly eighty years ago. Decision to concentrate on scientific research is the reason. It is also reported that the *New England Naturalist,* published quarterly by the New England Museum of Natural History, Boston, since December, 1938, suspended publication with the February issue.

HARVARD COLLEGE will receive a residuary bequest of $259,089 under the will of Henry Osborn Taylor, author and historian, who died on April 13, 1941. The will directs that the bequests be applied toward the maintenance of salaries for members of the teaching staff.

THE University of California College of Pharmacy has been accredited by the American Council on Pharmaceutical Education and given membership in the American Association of Colleges of Pharmacy. In announcing this action, which places the College of Pharmacy on the same footing as other accredited colleges, Dean L. A. Schmidt explains that the delay in receiving this status was due to the reorganization of the curriculum and the modernization of laboratories and equipment which has been in progress for five years.

DISCUSSION

NEW EPIDEMIOLOGICAL ASPECT OF SPOTTED FEVER IN THE GULF COAST OF TEXAS

THE alarming increase of typhus fever in Texas, reaching in 1942 the highest figures in modern Texas history, was recently accentuated by a localized outbreak of spotted fever. Four children living in a wooded area of the Gulf Coast were attacked by this disease, which was fatal in two cases. Confluent hemorrhagic spots involving the skin of victims were the most spectacular symptoms on which the disease was diagnosed by Dr. B. Reading, professor of pediatrics. Gross pathology and histopathology were characteristic of spotted fever. Rickettsiae, coccoid in type, were found in endothelial cells of various organs.

Two strains of the infective agent have been established by the undersigned in guinea pigs inoculated with material from the above cases. After incubation of 2 to 4 days a high fever of from 6 to 9 days' duration developed in the infected animals. Mortality in guinea pigs is very low. Occasionally scrotal reaction has been noted. Intracellular coccoid Rickettsiae were found in sections of guinea pigs' organs.

The surviving guinea pigs were found immune against spotted fever strain from Montana kindly furnished by Dr. R. R. Parker but susceptible to flea- and louse-borne typhus strains.

The locality from which the cases came was found by us and by the entomologist of the Texas State Health Department to be infested heavily with the tick, *Amblyomma americanum.* Two specimens of the same species were also collected from the family of the victims. A thorough survey of the same area repeated two months later by U. S. Public Health Service and the Texas State Health Department again revealed *A. americanum* only among several thousand tick specimens collected. In both surveys no *Dermacentor variabilis* or any other type of tick was present.

These findings are of interest as they offer weighty evidence suggestive of spotted fever transmitted in nature by *A. americanum* as a new additional carrier of the disease. Experimental transmission tests by Parker, Philip and Jellison (1933) have proven *A. americanum* as an efficient carrier of Rocky Mountain spotted fever. The above authors have also discussed the possibility of *A. americanum* being a natural carrier of that disease but no case of spontaneous infec-

tion has been definitely attributed to this tick before the observations reported here. On the other hand, the genus Amblyomma is known to be a vector of spotted fever in Brazil and Colombia. Under these circumstances, the spotted fever of the Gulf Coast would be more closely related epidemiologically to that of South America than to that of the Rocky Mountains.

LUDWIK ANIGSTEIN
MADERO N. BADER
DEPARTMENT OF PREVENTIVE MEDICINE AND PUBLIC HEALTH, MEDICAL BRANCH, UNIVERSITY OF TEXAS

ADDITIONAL STEROIDS WITH LUTEOID ACTIVITY

RECENT experiments lead us to believe that contrary to common opinion the progestational type of luteoid activity is detectable in many steroids and is not dependent upon the presence of an α-β unsaturated ketone group at C_3. Bioassays were performed on the immature rabbit according to McPhail[1] with the only modification of using 3 subcutaneous injections of 5 γ of estradiol in 0.1 cc of peanut oil subcutaneously every second day during the period of sensitization.

Since considerable confusion has been created in the literature by the inadequate description of steroids used for pharmacological assays, we shall refer to our compounds by their full systematic names [for terminology see Selye[2]] followed in brackets by their common names—whenever such are in use—and the melting point of our sample. The dosages given represent the total amount administered during the test.

The following steroids proved to possess progestational activity at the dose levels indicated: 17-ethyl-Δ^5-androstene-3(β)-ol-20-one (pregnenolone, M.P. 186°) 10 mg; 17-ethyl-Δ^5-androstene-3(β),21-diol-21 acetate (acetoxy-pregnenolone, M.P. 183–184°) 25 mg; 17-ethyl-Δ^4-androstene-3,11,20-trione-17,20-diol (Kendall's Cpd. "E", M.P. 215–218°(dec.)) 2 mg; 17-butyl-Δ^4-androstene-3,20-dione(21-ethyl progesterone, M.P. 115°) 10 mg; Δ^4-androstene-3,17-dione (M.P. 170°) 25 mg; Δ^5-androstene-3(β),17(α)-diol (androstenediol, M.P. 184–185°) 50 mg.

The following compounds proved to be devoid of progestational activity at the dose level indicated: Δ^5-androstene-3(β)-ol-17-one (dehydro-*iso*-androsterone, M.P. 146°) 50 mg; Δ^4-androstene-3,17-dione-6(α)-ol acetate (M.P. 176°) 4.5 mg; 17-*iso*-heptyl-Δ^5-androstene-3(β)-ol-25-one (27-nor-cholestenolone, M.P. 127–128°) 50 mg; the M.P. 180–182° epimer of Δ^5-17a-methylchrysopregnene-3(β),17a(?)-diol-17-one at 10 mg and its M.P. 275–278° isomerid at 5 mg.

It should be emphasized that the material available did not suffice in each case to perform a sufficient number of assays on a wide range of dosages and that there is considerable individual variation with regard to the sensitivity of rabbits to progestational compounds. Hence the doses at which we detected definite activity should not be regarded as accurate threshold doses suitable for quantitative comparisons, although positive tests are qualitatively conclusive. Pregnenolone and acetoxypregnenolone have been assayed at various dose levels on 20 rabbits so that the threshold dose of 10 mg for the former and 25 mg for the latter may be regarded as fairly accurately established. The fact that they both possess progestational properties indicates that neither the ketone group at C_3 nor the Δ^4-double bond are essential prerequisites for luteoid activity. It will be recalled that both these compounds are also endowed with corticoid activity,[3] but in this respect acetoxypregnenolone is more active. It appears, therefore, that in the Δ^5-3-ol series, as in the Δ^4-3-one series (confront with progesterone and desoxycorticosterone acetate), introduction of a 21-acetoxy group increases the corticoid, but decreases the luteoid potency.

A detailed description of these experiments as well as of the relevant literature will be given at a later date. At this time we merely wish to call attention to the fact that progestational activity is exhibited by many more compounds than has hitherto been suspected.

Acknowledgments: The cost of these investigations was defrayed from a grant given by the Hoffmann-LaRoche Company which, through its Montreal representative, Paul Blanc, also supplied some of the steroids used. The authors are also indebted to Professors E. C. Kendall, L. Ruzicka and Drs. G. W. Holden, E. Schwenk and H. Stavely for additional compounds.

HANS SELYE
GEORGES MASSON
DEPARTMENT OF ANATOMY, MCGILL UNIVERSITY

THE OCCURRENCE AND SIGNIFICANCE OF MARINE CELLULOSE-DESTROYING FUNGI[1]

IN the course of investigations on the decomposition of wood submerged in sea water the author has recently isolated a series of marine fungi which readily attack wood and other cellulosic plant materials under marine conditions. Extensive data concerning the distribution of these aquatic fungi show that they are of very common occurrence along the North Atlantic coast, with the present known range from Newfoundland to New York Harbor. Further evidence on the

[1] M. K. McPhail, *Jour. Physiol.*, 83: 145, 1934.
[2] Hans Selye, *Rev. Canad. de Biol.*, 1: 577, 1942.
[3] Hans Selye, SCIENCE, 94: 94, 1941.
[1] Preliminary note.