

## BIOCHEMISTRY

## Drug Mixing Danger Seen

**Analexin, a reputable pain killer and muscle relaxant, may increase to excess the effects of anticoagulants when the two drug types are taken simultaneously.**

► THE DRUG ANALEXIN, or phenylbutazone, a reputable pain killer and muscle relaxant, can be dangerous if given to patients already taking oral anticoagulant drugs, a Canadian doctor warned.

Anticoagulants are often given to prevent dangerous blood clots following coronary thrombosis and to prevent new clots from forming following embolism.

Dr. Stefan A. Carter of the University of Manitoba, Winnipeg, Canada, and St. Boniface General Hospital, St. Boniface, reported in the *New England Journal of Medicine* 273:423, 1965, that two hospitalized patients reacted to the combined medication.

Both patients, a man 53 years old and a woman 63, were on long-term anticoagulant therapy following heart attacks when Analexin was prescribed for back pain. Blood-clotting factors became deficient in both, and the woman had nose bleeds, blood in the urine and multiple bruises.

"To my knowledge this is the first report on this action of phenylbutazone," Dr. Carter said. "It is likely that the list of drugs that affect the action of anticoagulants will continue to grow. This will increase the already

difficult task of controlling the prothrombin time in patients on anticoagulant therapy, many of whom receive several medications."

Physicians who supervise long-term anticoagulant treatment must be thoroughly familiar with the drugs that affect the action of anticoagulants, which might have a similar effect, Dr. Carter said.

Drugs already known to increase the effect of anticoagulants include aspirin and other salicylates, sulfonamides, bowel-sterilizing antibiotics and phenylbutazone. Phenylbutazone is used for pain, fever, gout, rheumatoid arthritis, acute phlebitis and thrombophlebitis.

Two drugs that restrain the effect of oral anticoagulants on the blood-clotting time are vitamin K-1 and phenobarbital.

Various mechanisms may be responsible for such interaction between drugs, the researcher said.

It appears that many new drugs stimulate or inhibit enzymes that are concerned with their own metabolism or with the metabolism of other drugs and thus diminish or increase the drug effect.

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## PUBLIC HEALTH

## Schistosomiasis Attacked

► THE SNAIL-CARRIED DISEASE schistosomiasis is soon to be attacked on the island of St. Lucia in the Caribbean.

The Rockefeller Foundation with the assistance of the government of the British colonial possession 20 miles south of Martinique hopes to succeed so well with its control project that other governments and international agencies will join in an attack on this major parasitic disease. Schistosomiasis affects at least 200 million rural people in the Far East, Africa, the Middle East, eastern South America and Puerto Rico, and the Leeward and Windward Islands of the Caribbean.

The parasite that causes the wasting disease multiplies in snails which infest ponds, streams, lakes and irrigation systems. Impoverished persons without central water supplies or means of waste disposal become infected by the parasite in its larval stage when it enters their bodies through the skin and develops into worms.

The worms in turn lay eggs which, through the discharge of human waste, re-enter the water and give rise to a larval form that infects the snails. Snails are capable of multiplying a single egg into thousands of larvae so that the cycle repeats itself endlessly.

The disease can be fatal but is generally

a lingering one. Once infected, a human being is likely to suffer all his life unless he is treated. In two of its three manifestations, the irritative effect of the eggs destroys the liver tissues. A third form of the disease affects the urinary tract.

The Rockefeller Foundation plans to furnish professional specialists from its staff as well as funds for the importation of necessary scientific equipment and the construction of a small laboratory in St. Lucia. The island government will supply land, labor and subprofessional workers.

St. Lucia is an ideal island laboratory for the pilot project, which is expected to take at least five years. Virtually all of the island's 100,000 persons, with their cattle, are exposed to schistosomiasis.

Dr. John M. Weir, director of medical and natural sciences, Rockefeller Foundation, pointed out that before World War II few Americans, even physicians, had heard of this parasitic disease. U.S. complacency was jarred during operations in the Philippines when thousands of servicemen contracted schistosomiasis, threatening transplantation to the United States. Fortunately, only one of the 72 North American snails is a possible host, and the high level of sanitation in most parts of the United States made any widespread outbreak unlikely.

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## PHYSIOLOGY

## Hormone, Man's Barrier To Woman's World

► THE ACTION of male sex hormones during a critical period in early development separates the man's world from the woman's.

Evidence has been reported by Dr. Roger A. Gorski of the brain research institute of the University of California at Los Angeles that at least a portion of the brain is inherently feminine.

Unless there is testicular tissue secreting testosterone during this period of development to organize this portion of the brain along masculine lines it remains forever feminine.

The portion of the brain is known as the hypothalamus. One of its major roles is to regulate the pituitary gland and through it levels of sex hormones and sexual behavior.

The pattern of release of sex hormones in the female is cyclic. In the male it is virtually continuous. It was found that if a newborn male rat was castrated during the critical period, the cyclic feminine pattern developed. If male hormones were injected during this period, the masculine pattern appeared. Female hormones appear to have nothing to do with sexual differentiation of the brain.

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## PHYSIOLOGY

## Causes of Arousal From Sleep Studied

► BY TICKLING a frog's back, the mysterious impulses that cause humans to waken from sleep may have been pinpointed.

Dr. K. E. Chernetski of the University of Florida's department of zoology says his studies indicate that awakening is dependent on a small number of nervous impulses flowing out of the brain to trigger a vast barrage of impulses throughout the body, leading to general behavioral arousal.

The specialist in neurophysiology is studying a somatic reflex in frogs with the support of a grant from the Institute of General Medical Sciences.

A frog usually shows no overt response to the ringing of a bell. However, a tap on the frog's back will produce a kick of a hind leg. If a bell is rung approximately one-tenth of a second before the kick, the sound very clearly intensifies this reflex, Dr. Chernetski reported.

He found that when most of the small sympathetic fibers carrying impulses to the skin are cut, the sound has little or no effect on this reflex.

Dr. Chernetski previously learned that the sympathetic fibers normally cause receptors located in the skin to send large barrages of impulses to the brain and spinal cord. His recent findings suggest that these secondary incoming barrages of impulses play an important role in "arousing" the brain so that it can integrate the noise of the bell, thus intensifying the leg reflex.

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