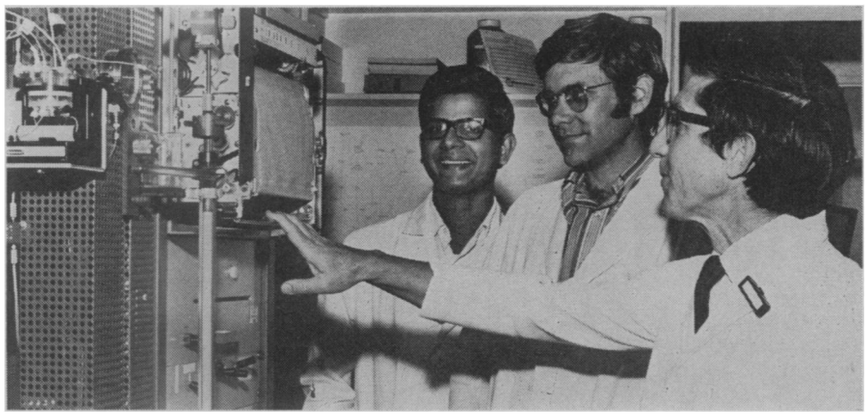
many of the Pennsylvania cities was that the dikes were built to contain what up to that time had been the record flood, and Agnes broke all records. He suggests a 25 percent safety margin.

Dams are another safety measure. Towns downstream from adequate dams were little affected by the recent flooding and if Pittsburgh hadn't been protected by a series of dams upstream, he says, damage there would have been ten times greater than it was. The Corps has been urging these river communities to install proper flood control measures for years. The problem has been to get Congress to appropriate the funds needed to help local areas carry the cost of construction. The costs would be high, but certainly not as high as the cost, in dollars and lives, of neglecting such precautions has been. □

Yes, there is a 'mother love' hormone



Scripps

Singh, Seavey, Lewis use amino acid analyzer to study prolactin structure.

In June 1970 Choh Hao Li and Thomas A. Bewley at the University of California published work showing that the primary structure of human growth hormone and sheep prolactin, the milk-secreting hormone, are similar chemically. More recently, Li's group showed that human growth hormone synthesized in his laboratory had both growth-promoting and milk-secreting activities, leading the researchers to conclude that growth hormone might actually play a dual role.

The possibility of this double function was intriguing, but it ran counter to hormone action in other mammals. Other mammals have both growth hormone and prolactin hormone. For some years clinicians have thought they saw a hormone in the blood of lactating women that was a little different from growth hormone. But they lacked the biochemical techniques to confirm their observations.

At the Fourth International Congress of Endocrinology last week in Washington, Canadian and California researchers reported that human prolactin indeed exists. It is what endocrinologists called the "mother love hormone" back in the 1930's. Their success derives from refining techniques to detect prolactin both in the tiny pituitary gland that makes it and growth hormone and in the bloodstream.

The Canadian group includes Henry Friesen and Peter Hwang of the Royal Victoria Hospital in Montreal and B. C. W. Hummel and G. M. Brown of the Clarke Institute of Psychiatry in Toronto. The California members are from the Scripps Clinic and Research Foundation in La Jolla. They include U. J. Lewis, W. P. VanderLaan, Y. N. Sinha, R. N. P. Singh and B. K. Seavey. Friesen and Lewis are actually the pioneers. For some years they have been working on the purification of prolactin and growth hormone in animals and man.

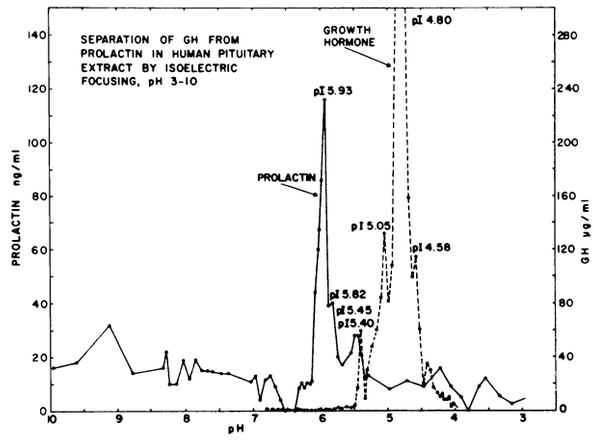
The Canadian and California scientists perfected techniques for separating out prolactin material from pituitary glands provided by the National Pituitary Agency (National Institute of Arthritis, Metabolic and Digestive Diseases). Their techniques then enabled them to determine more precisely that the material is prolactin. The physical and chemical techniques Friesen's group uses include solvent fractionation, chromatography, isoelectric focusing and radioimmunoassay. Lewis's group uses a purely physical technique called disk electrophoresis. After both groups identify their material as prolactin, they test it for biological activity.

Friesen's group has already obtained enough human prolactin material for determination of the hormone's complete chemical structure. They have submitted it to Hugh D. Niall of the Massachusetts General Hospital for this sequencing. Niall and Li together worked out the amino acid sequence of the human growth hormone (SN: 5/6/72, p. 302). Lewis has performed rough chemical sequencing of his material, enough to correlate it with sheep prolactin and to find that the two are 75 percent identical. When he gets enough material, he too will submit it to Niall for final sequencing.

Lewis's team will also soon be using radioimmunoassay to detect prolactin not in the pituitary gland but in the blood of women with breast cancer, to see whether there might be a high correlation between prolactin levels and breast cancer. Such a correlation is strong in the mouse. Other research teams in the United States and Europe will be conducting similar clinical screening in the near future.

The Canadian and California investigators also intend to obtain enough human prolactin to provide other scientists with it for study. The hormone may do more than cause milk secretion in nursing women or in women with breast cancer. There is evidence that men secrete prolactin, and that the hormone may circulate throughout the bodies of both men and women with daily fluctuations in levels. Prolactin also gives subtle indications of being a stress hormone. For example, heightened levels of prolactin appear to have been detected in the blood of patients about to undergo surgery. □

Isoelectric focusing shows that human prolactin and growth hormone differ.



Friesen, Hwang, Brown, Hummel