yields and were shown to be chemically pure and biologically active. Solid-phase peptide synthesis has now been automated in collaboration with Dr. John Stewart. All the reactions were carried out in a single reaction vessel and each of the manipulations was performed in the proper sequence under the control of a pre-set programmer. A peptide chain can be lengthened by six amino acid residues per day completely automatically without manual attention. The process was tested on the synthesis of bradykinin and gave satisfactory results.

29. Human Salivary Kallikrein and Liberation of Colostrokinin. HIROSHI MORIYA (*Laboratory of Physiological Chemistry, Tokyo College of Science, Shinjuku-ku, Tokyo, Japan*).

The isolation and purification of kallikrein from human pooled saliva (Japanese) has been studied. The kallikrein content in saliva was 1–2 Frey U/ml. Acetone-dried powder of human mixed saliva was found to be suitable as starting material for purification. A highly purified fraction was obtained by using ion-exchange column chromatography, acetone fractionation, and Sephadex filtration. The activity of kallikrein was assayed by measuring the esterase activity with TAME substrate and the increase in arterial blood flow of dogs. The purest preparation obtained had 200 Frey U/mg with a yield of 0·2–0·5 FU/ml of original saliva. Human salivary kallikrein liberates colostrokinin from bovine colostrum as measured on the rat uterus and dog blood pressure. Human salivary kallikrein was labeled with ^{131}I; its effect on absorption through the intestinal wall was also studied.

30. Bradykinin in the Carcinoid Syndrome. JOHN A. OATES, WILLIAM A. PETTINGER and R. B. DOCTOR (*Division of Clinical Pharmacology, Depts. of Medicine and Pharmacology, Vanderbilt Univ. School of Medicine, Nashville, Tenn., U.S.A.*).

Previously we have demonstrated that a kinin peptide is released into the circulation of some patients with carcinoid syndrome after the injection of epinephrine. The present investigations were carried out to characterize this peptide. By gradient elution chromatography on CM-Sephadex, it was possible completely to separate microgram amounts of bradykinin from kallidin. The elution characteristics of the carcinoid kinin in this system were identical with those of authentic bradykinin. On both high-voltage electrophoresis at pH 3·5 and paper chromatography with butanol: acetic acid:H_2O, the carcinoid kinin had the same mobility as bradykinin. The rate of inactivation during incubation with chymotrypsin for 12 min at 12° was the same for both the carcinoid kinin (22·7%) and bradykinin (22%). Very little inactivation of either occurred during incubation with trypsin for 60 min at 38°. The pharmacologic effects of the carcinoid kinin and bradykinin on the rat uterus, guinea pig ileum, rabbit blood pressure, and rat duodenum were also similar. All these studies indicate that the kinin found in the hepatic vein blood of patients with carcinoid syndrome is bradykinin. There is additional evidence suggesting that the tumor kallikrein initially forms kallidin which is rapidly converted to bradykinin in plasma.

31. Observations in vivo of the Peripheral Circulation During Bradykinin Infusion by Transilluminating Quartz-Rod Technique (colored motion picture). G. PELLEGRINI and C. PIOVELLA (*Instituto di Patologia Medica dell'Università di Pavia, Italy*).

The terminal circulation of the mesentery and liver of rats and frogs was studied during and after bradykinin infusion. After an initial vasoconstriction, a large dilatation of the small arteries was observed, together with a spastic vasoconstriction. The irregular shape of the capillaries with an increase in permeability was demonstrated by fluoroscopy.

32. Bradykininogen in the Blood of Women During Pregnancy, Labor, and Puerperium. P. PERITI and F. GASPARRI (*Instituto di Farmacologia, and Instituto di Clinica Ostetrica e Ginecologia, Università di Firenze, Italy*).

Bradykininogen (BKG) of the plasma has been assayed with a biological method using rat uterus *in vitro*. During pregnancy BKG increases and at the ninth month reaches above normal levels with an arteriovenous ratio significantly greater than unity.

At the onset of labor BKG decreases progressively as the uterine contractions become more intense. The decrease reaches its maximum in the expelling stage. Within a few hours of the delivery, BKG values return to normal.

Twelve to twenty-four hours after the delivery the level of BKG starts a slow, progressive decrease which lasts three to four days, reaching in some cases below normal values. Within eight to ten days after the delivery BKG returns to normal in women who have had no puerperal complication.

The fetus is born with a BKG content of the blood markedly lower than the normal average value in the adult. During the first week of life, BKG slowly rises toward a higher level.

The hypothesis is suggested that the behavior of BKG in the woman during pregnancy and labor is connected with the uterine muscular mass and with its prolonged rhythmic contraction in the dilating and expelling stage of labor. In puerperium