simple peptides. Such combinations do not appear to have been given a trial.

We are briefly reporting the results obtained by a subcutaneous injection of Insulin (2 c.c. of 40 units/c.c., Lilly Co.) combined with casein-hydrolysate (2 c.c. of 2 per cent. 'Pronutrin') and zinc chloride (0·7 mg.). The resulting solution was adjusted to pH 3·4, with decinormal HCl; and it was found to be slightly opalescent. The proportion of zinc salt added has been kept more or less constant as in the two other Protein-Insulin preparations. Each of the preparations was tried on batches of 25 rabbits with 1 unit per rabbit.

Preparation injected	Average Blood Sugar (Mgm. per cent.)				
	0 hrs.	2 hrs.	4 hrs.	6 hrs.	24 hrs.
Ordinary Insulin ..	125·0	67·0	98·0	122·0	124·0
Protamine-Zn-Insulin	124·0	90·0	69·0	61·0	100·0
Globin-Zn-Insulin	124·0	68·0	72·0	85·0	107·0
Casein-Hydrolysate-Zn-Insulin	122·0	88·0	72·0	75·0	105·0

There appears to be a definite prolongation of the hypoglycæmic effect when Insulin is mixed with casein-hydrolysate. The intensity of the effect appears to be intermediate between those of Globin-Insulin and Protamine-Zn-Insulin. Further studies are in progress and the details will be published elsewhere.

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INDIAN HENBANE

Hyoscyamus niger or *Henbane* is a well-known medicinal plant which is extensively used for its sedative properties. In India the plant grows wild at an altitude of 5,000 to 9,000 ft. above sea-level in the temperate Himalayas. It has also been cultivated as a winter crop in the plains in such places as Saharanpur, Lyallpur, etc. In Kashmir the plant grows wild throughout the valley and on rubbish heaps, dry drains and outskirts of villages.

Although the supply of *Hyoscyamus niger* from Indian sources has been meeting to some extent the demand of the market in this country, yet it has been reported that the Hyoscyamus leaves from various localities in India are of poor quality,[1] much below B.P. standards.

Chemical analysis[2] of samples of leaf obtained in Kashmir Valley and other parts of India from both wild and cultivated plants was carried out. The leaves were collected at the flowering stage of the plant, dried partly in sun and partly in shade before analysis. The results are tabulated below:—

Locality	Altitude (ft.)		Percentage of total alkaloids
Drang (Kashmir)	7,500	Wild	0·076
Yarikah (Kashmir)		Cultivated	0·084
Gulmarg (Kashmir)	7,100	Cultivated	0·074
N.-W.F.P. ..	9,000	Wild	0·066
N.-W.F.P. ..	3,000	Wild	0·047
Lyallpur ..	1,100	Wild	0·031
Saharanpur ..	800	Cultivated	0·025
		Cultivated	0·035
Commercial samples of Kashmir-Grown Hyoscyamus (from Utilisation Division, Baramulla)			
1945 crop			0·058
1946 crop			0·062
B.P. 1932 standard			0·05
U.S.P. XII standard			0·04

The table shows that *Hyoscyamus niger* leaves growing wild or cultivated in Kashmir at altitudes of over 5,000 feet above sea-level give alkaloid contents well up to and even above B.P. and U.S.P. standards.

The leaf grown at lower altitudes or in the plains has a lower content than the B.P. and U.S.P. standard. The Forest Department of Kashmir State is planning to extend the cultivation of Hyoscyamus at suitable altitudes, and It is hoped that good quality leaves will be available to the medical profession on an extensive scale. So far the quantities of good leaf have been very limited.

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VALUE OF $[M]_D$ FOR CAMPHOR-β-SULPHONATE ION IN WATER

Camphor-β-sulphonic acid is a strong acid and its salts easily ionise in water. For optically active substances which ionise in water Hadrich[1] offered the suggestion that in dilute aqueous solution they might ionise as follows:

$$R^* COOM \rightleftharpoons (R^* COO)^- + M^+$$
$$B^* HCl \rightleftharpoons (B^* H)^+ + Cl^-$$

where R* and B* are optically active acid and base respectively and the rotations of such solutions are due wholly to the anion in the former case and kation in the latter. Prior to this explanation Landolt[2] has shown that molecular rotations of Li, Na, K and NH_4 salts