employment of alcohol in the treatment of fevers should be regarded not as a dietetic but invariably as a medicinal measure.

Space does not permit the discussion of the treatment of complications, nor of the management of convalescence. If perforation occurs during or after the period of defervescence, namely, in the fourth week or later, laparotomy should be performed.—*Med. News.*

SOME LABORATORY NOTES ON PAPOID DIGESTION.

For some time it has been known that the stems, leaves and unripe fruit of a plant called *Carica papaya* contain a ferment capable of digesting proteids. This plant is found in the East and West Indies and in South America. The natives of many localities where this plant is indigenous make a practice of rolling their fresh meat in caraca leaves to make it tender and easier of digestion. From the juice of this plant Dr. Finkkler, of Bonn University, has made an albuminous preparation containing the ferment, which is now attracting much attention under the name of Papoid.

Wurtz, however, was the first to isolate the ferment, to which he gave the name of *papain*, and ascribed to it certain definite and characteristic reactions. About 90 per cent. of commercial papoid is soluble in water; the residue consists chiefly of coagulated albumen. The solution contains globulin, but it is highly probable that the ferment is quite independent of this albuminoid, as the globulin may be precipitated, leaving in the solutian a large part, if not all, of the ferment. As papoid contains the ferment papain and also some albumen on which it may act, care must be taken to keep it dry. The unsatisfactory results obtained by some in its use are no doubt due to previous exposure of the sample to moisture. A solution of papoid will always give the peptone reaction on standing a few hours.

The greatest differences of opinion have been expressed by different experimenters as to the conditions most favorable to the activity of papoid. Albrecht (*Schmidt's Jhrbuch*, Bd. 190) states that papain digestion is hastened by the presence of hydrochloric acid. Wurtz, on the other hand shows that papain digestion is essentially a neutral one, which is most rapid and thorough at a temperature of about 40°. Rossbach has recorded a few experiments—at variance with most others—in which he claims that this ferment is not more active in a warm solution than in a cold one. As papain is a vegetable product, this seems highly probable, but the careful experiments of Dr. Sidney Martin fully prove that a moderate degree of heat increases the activity of this ferment just as it does that of any other. The fact remains, however, that papain has powerful digesting action at at ordinary temperatures—50°–70°F. Dr. Martin has published, at some length, a series of carefully made experiments on the nature and action of papain in the *Journal of Physiology*, Vols. V. and VI, and the results of the following experiments, where they run parallel with his, closely correspond with the results obtained by this author.

In each of the following experiments the digestion mixture consisted of 1 gramme of pure dry fibrin in powder, which was boiled in 20 cc. of water and allowed to stand for 12 hours to soften. To this was added 10 cc. of a 1 per cent. solution of the ferment to be used, and standard acid or alkali to required strength, making the whole mixture up to 50 cc. The digestions were carried on in an incubator kept at a constant temperature of 37-38°C., and at the end of a variable time the undissolved fibrin was filtered off on a small, tared filter, and after thorough washing was dried at 100° to constant weight. Thus the undigested fibrin could be weighed in the same condition as before it was submitted to the action of the ferment, and any experimental error caused by the presence of a variable quantity of moisture was eliminated. It is not easy to understand how relative digestion can be accurately determined by those who experiment with proteids of such indefinite and variable composition as "hard-boiled egg," "fresh meat," and "freshly coagulated albumen"; yet many of the published results on papoid digestion have been based on experiments in which their substances were weighed before and after the action of the ferment.

EXPERIMENT I.—Digestion mixture consisted of 1 gramme fibrin, 10 cc. of a 1 per cent. solution of papoid or pepsin in a neutral medium; time 20 hours; temperature 37-38°C. Experiment done in duplicate:

	Undigested fibrin.	*Per cent. digested.*
Papoid (*a*)	.187 grm.	81.3 per cent.
Papoid (*b*)	.13 "	87.0 "
Pepsin (*a*)	.903 "	9.7 "
Pepsin (*b*)	.883 "	11.7 "

EXPERIMENT II.—Conditions the same as in I, but in an acid medium of .3 per cent. hydrochloric acid; time 20 hours; temperature 37-38°C.:

	Undigested fibrin.	*Per cent. digested.*
Papoid (*a*)	.972 grm.	2.8 per cent.
Papoid (*b*)	.923 "	7.7 "
Pepsin (*a*)	.08 "	92.0 "
Pepsin (*b*)	.04 "	96.0 "

EXPERIMENT III.—Pepsin in .3 per cent. hydrochloric acid and papoid in a neutral medium; other conditions as before; time 15 hours:

	Undigested fibrin.	*Per cent. digested.*
Papoid (*a*)	.378 grm.	62.2 per cent.
Papoid (*b*)	.322 "	67.8 "
Pepsin (*a*)	.232 "	76.8 "
Pepsin (*b*)	.281 "	71.9 "

EXPERIMENT IV.—Papoid and pancreatin in 1 per