acceptors present in the alkaline washed yeast with thiamin for the available phosphorus. The greater and more rapid synthesis in the presence of phosphoglyceric acid is due to the ability of this compound to regenerate adenosinetriphosphate from adenylic acid. The stimulatory effect of cozymase on the synthesis in the presence of added adenosinetriphosphate is due to the fact that in the presence of these compounds carbohydrate present in the alkaline washed yeast is broken down with the resynthesis of adenosinetriphosphate. The inhibitory effect of iodoacetate upon the synthesis in the presence of adenosinetriphosphate is due to the inhibition of carbohydrate breakdown.

The degree of cocarboxylase synthesis under our conditions appears to be limited by the saturation of the carboxylase enzyme[3]. In addition, the competitive effect of phosphate acceptors present in the alkaline washed yeast appears to be so great that more than 200 micromoles of phosphoglyceric acid may be fermented with the production of only 3 micrograms of cocarboxylase.

Weil-Malherbe[4] has recently employed a soluble yeast protein freed from thiamin pyrophosphate for experiments upon the synthesis of cocarboxylase. Under these conditions he has secured results which appear to be similar to those obtained in our laboratory.

We are indebted to H. von Euler and F. Schlenk for a sample of pure cozymase and to Prof. C. F. Cori for adenosinetriphosphate.

M. A. LIPTON.
C. A. ELVEHJEM.

Department of Biochemistry,
University of Wisconsin,
Madison, Wisconsin.
Dec. 29.

[1] Lipschitz, M. A., Potter, V. R., and Elvehjem, C. A., *Biochem. J.*, **32**, 474 (1938).

[2] Lipschitz, M. A., Potter, V. R., and Elvehjem, C. A., *J. Biol. Chem.*, **124**, 147 (1938).

[3] Lipton, M. A., and Elvehjem, C. A., *Cold Spring Harbor Symposia on Quant. Biology*, **7** (1939).

[4] Weil-Malherbe, H., *Chem. Ind.*, **58**, 1021 (1939).

Hydration of Stearanilide

A PHENOMENON of some interest was observed during the preparation of stearanilide. The finished product, recrystallized from absolute alcohol and from chloroform, melted at 93° C. When recrystallization from alcohol was being carried out, a portion of the alcoholic solution was poured into a large excess of cold water. A white material of much greater bulk than the dissolved stearanilide was thrown down. Initially of a gelatinous character, it became granular on standing. It was filtered off at the pump, washed with water, and dried *in vacuo* over fused calcium chloride for ten days. After drying, the material consisted of an amorphous white powder, dry to the touch and easily crumbled between the fingers. The powder had no definite melting-point but decomposed quite sharply at 88°–89°, yielding a drop of colourless liquid and a white solid. This white solid melted at 92°–93°.

A more detailed investigation was then carried out. Weighed samples (1–2 gm. each) of the amorphous white powder were heated to constant weight in ovens at different temperatures. In the accompanying table are recorded the oven temperatures, the hours of heating required to achieve constancy in weight, and the percentage loss in weight:

Temperature	Hours	% Loss in weight
55°	14	79·8
80°	9·5	79·1
90°	3·5	79·1

When drying was complete the residue in every case melted at 93° C.

Thus after drying *in vacuo* over fused calcium chloride for ten days the powder contained almost 80 per cent water. It is suggested that the powder is a hydrated form of stearanilide. The existence of such material is remarkable, as stearanilide is generally described as being very hydrophobic. Calculation shows that, in the material examined, about eighty water molecules were associated with one molecule of stearanilide.

B. A. TOMS.

Department of Chemistry,
The Queen's University,
Belfast.
Jan. 10.

Lyell's Geological Texts

RECENTLY, while referring to Charles Lyell's "Elements of Geology", it was found that the Yale Library copy, of date September 12, 1839, had been sent by the publishers to Benjamin Silliman. This was the first American edition from the first London edition as published by Kay Bros., Philadelphia, with 316 pages and 295 figures in the text. After one hundred years this fine text, one of the world's great books, should again be noted. Earlier, the same publishers had brought out an American edition of Lyell's "Principles of Geology", as was duly noted by Silliman in his *Journal* (now the *American Journal of Science*) at the time. Quoting: "Lyell has done much to recall geologists from extravagant speculations, and to allure them back to a course of strict induction; thus placing Geology side by side with the other sciences of observation".

Nevertheless, after several tens of years advance in geology there came Huxley's famous fling: "Geologists had imagined that they could tell us what was going on at all parts of the earth's surface during a given epoch; they have talked of this deposit as being contemporaneous with that deposit, until from our little local histories of the changes at limited spots of the earth's surfaces they have constructed a universal history of the globe as full of wonders and portents as any other story of antiquity". As justly though, Huxley admitted that, "It was Lyell who had smoothed the road for Darwin".

Re-reading the "Elements" and "Principles" to-day leaves the same fine impression of clarity and of lucidity that proved so arresting one hundred years ago. So much is this true that it would seem that any university student who now finds difficulty in following the subject of geology would get from even a brief, if attentive, reading of Lyell's famed texts the sure initial stimulus so helpful in any far-set or over-strange subject. There blaze the colours of the sunrise of the first real hundred-year day in geology. Starting thus aright, and coming down through that day, the student may the better scan the shadows of that far-set twilight land perhaps destined to be lighted clearly during the second century of geology.

© 1940 Nature Publishing Group