This seemed a desirable plant in which to study the factors influencing HCN formation. The chemical composition of *Suckleya suckleyana* and its relation to the toxic properties of the plant is an important physiological problem.[2]

Preliminary studies of the carbohydrate and nitrogen content of poison Suckleya showed the soluble carbohydrates to be chiefly reducing sugars which varied from one per cent. in seedlings to 2.5 per cent. in three-months-old plants. The sucrose content never exceeded 0.25 per cent. at any stage of development studied.

The starch content showed only moderate variation from early June to August.

Close relationship was found between the HCN and reducing sugar content. The HCN varied from a minimum of 0.018 per cent. at the time of minimum sugar content to a maximum of 0.240 per cent. when the sugar was highest.

Young plants contained a higher percentage of protein or colloidal nitrogen than old plants, but the older plants were higher in soluble nitrogen.

The marked reduction of protein nitrogen with advance of the season, accompanied by an equally rapid formation of HCN, is a behavior worthy of further investigation which may help to clarify some of the problems of nitrogen metabolism in plants. It is probable that following the exhaustion of available nitrates from the soil, synthesized proteins may be digested and the nitrogen constituent of the molecule then used in the formation of glucosides which yield HCN upon hydrolysis.

The data showed no accumulation of starch during the period of protein nitrogen diminution but rapid increase of reducing sugars. This relationship between the hexose sugars, colloidal nitrogen, soluble nitrogen and HCN suggests that the presence of available carbohydrates may stimulate the synthesis of the HCN—containing glucoside. The above relationship also suggests that this synthesis probably is not checked by limited nitrates, providing factors have been favorable for liberal protein formation in the early part of the season.

C. G. BARR
H. W. REUSZER
FRANK THORP, JR.

COLORADO AGRICULTURAL EXPERIMENT STATION

EXPERIMENTAL CHRONIC CADMIUM POISONING[1]

CONTINUED feeding of albino rats with an adequate diet to which cadmium as the chloride had been added has been conducted in this laboratory for the purpose of studying the toxicity of chronically ingested cadmium. The details of this study will be reported elsewhere, but three symptoms of toxicity are so striking and of such importance as to justify a preliminary announcement in addition to the report presented at the twenty-third annual meeting of the Pacific Division of the American Association for the Advancement of Science.

The concentrations of cadmium added to the basic diet were 0.0031, 0.0062, 0.0125, 0.025 and 0.05 per cent. The symptoms of toxicity observed were bleaching of the enamel of the incisor teeth, anemia, and cardiac hypertrophy. The bleaching of the teeth is similar to, if not identical with, that produced by fluorides, and occurred on all dosage levels of cadmium. The degree of bleaching was proportional to the dosage. The anemia was likewise present on all dosage levels of cadmium, the severity increasing with the percentage of cadmium added to the diet. The cardiac hypertrophy was most evident on cadmium concentrations of 0.0062, 0.0125, and 0.025, and less evident on a concentration of 0.05 because the rats died before the hypertrophy could fully develop. Since the cardiac hypertrophy was not limited to the left ventricle, it is believed that the anemia rather than hypertension resulting from kidney damage was the causative factor.

ROBERT H. WILSON
FLOYD DEEDS

BUREAU OF AGRICULTURAL CHEMISTRY AND ENGINEERING, U. S. DEPARTMENT OF AGRICULTURE, AT THE DEPARTMENT OF PHARMACOLOGY, STANFORD UNIVERSITY SCHOOL OF MEDICINE

[1] Food Research Division Contribution No. 455.

[2] A paper presented at the Virginia meeting of the American Society of Plant Physiologists.

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