ABSTRACTS.

GENERAL AND INORGANIC CHEMISTRY.

Note on the Molecular Volumes of Some Double Chlorides. R. ROMANIS.

The mol. vols. of the anhydrous double Chlorides K_2SnCl_6 and $(NH_4)_2SnCl_6$ are respectively 138.6 and 146.1 and the contraction as compared with the vols. of the constituent chlorides, 38 and 54.5, agreeing very closely with the corresponding platinochlorides. In the case of the chlorides $(NH_4)_2PtCl_4$, $(NH_4)_2ZnCl_4$ and K_2SnCl_4, expansion occurs, the mol. vols. being larger than the sums of the vols. of the constituent chlorides. In K_3SbCl_6 2. H_2O the mol. vol. is 200.8 and the contraction 52.6. (*Chem. News, XLIX.* 273.) A. A. B.

Spectroscopic Examination of Vapors Obtained on Heating Iron and Other Metals at Atmospheric. J. PARRY.

The metals were heated to fusion, and the spark passed through the vapors evolved. Spectra obtained with Fe. Mg. Cu. &c. are described. (*Chem. News, XLIX.* 234.) A. A. B.

Chemical Phenomena of the Respiration of Plants. T. L. PHIPSON.

In a previous paper (*Chem. News XL VIII.* 205.) the author has described experiments upon the respiration of unicellular algae submerged in a solution of CO_2. He now finds that the conclusions then formed apply to unicellular algae in general, and, probably, to all plants except fungi. The evolution of oxygen in spring water is less active after renewal of the supply of CO_2 which has been once exhausted, and spring water boiled with certain precautions and then impregnated with CO_2 does not permit such respiration, The phenomenon of respiration requires presence of H_2O_2 of which spring water contains an abundance ; probably 6 to 8% of the oxygen yielded by boiling it has existed as H_2O_2. The author promises the proof of this conclusion in another paper.

MnO_2 exposed to sunlight in spring water can be made to *breathe* like the unicellular algae.

(*Chem. News, L.* 37.)

A. A. B.

Recent Estimations of the Amount of Salicylic Acid in the Cultivated Pansy. A. B. GRIFFITHS and E. C. CONRAD.

Salicylic acid was first discovered in plants by Piria in 1838 and later (1844) was found by Gerhardt and Cahours in wintergreen (*gaultheria procumbens*). Mandelin finds this acid or acids of the Cn H_2n-_8 O_3 series in the Violaceae generally.

The authors find salicylic acid in the common garden pansy in the following proportions:

Leaves,	per cent.	.1329
Stems	"	.0854
Roots,	"	.0530

The flowers contain only a trace. Microscopic examination fails to discover crystals of the acid in the cells of the plant and its production and function in the plant are still unexplained. (*Chem. News*, *L* 102.) A. A. B.

On the Physiology of the Carbohydrates in the Animal System. F. W. PAVY.

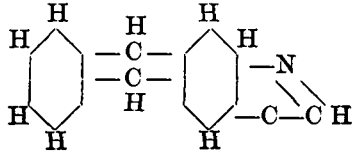
An investigation undertaken with the object of ascertaining the changes undergone by the four chief carbo-hydrate elements of food, viz: grape sugar, cane sugar, lactine and starch, during digestion. Beginning with the stomach, the attempt is made to follow the changes in these substances as they proceed towards absorption up to their arrival within the portal system of vessels. The experiments were performed upon the digestive organs of freshly-killed rabbits, portions of the stomach or intestines being left in contact, for a given time, with solutions of known weights of the carbohydrate in question, and the copper-reducing value of the substance, after this digestion, was compared with that which it had been found to have before contact with the animal substance. Inasmuch as grape sugar is characterized by the property of possessing the same reducing power after treating with sulphuric acid as before, while the carbo-hydrates which represent steps in an operation of which glucose is the final product, are altered in reducing power by the action of the acid, the author took the precaution to boil one portion of the modified liquid with sulphuric acid in all cases before estimating the reducing power. The copper-reducing value of the digested liquid may thus be compared with that of glucose, while the relation of the modified product to glu-

cose is also ascertained. The most striking results of these experiments is the indication that transformation of glucose into bodies of lower reducing power is possible under the influence of a ferment existing in the stomach and intestines. Boiling of the animal substance with water previous to the experiment was found to annul the action of this ferment. The latter body seems to exist rather within the walls of the vessels examined than upon the mucous surface. So far as the experiments have gone, the author regards them as indicating that this ferment is more abundant in the stomach and intestines of the rabbit than of those of the dog, cat, horse, sheep or pig. (*Chem. News*, *XLIX.*, 140.) A. A. B.

ORGANIC CHEMISTRY.

Synthesis of Anthrachinoline. C. GRAEBE.

After Skraup had shown that β-naphthylamine on being treated with glycerine, sulphuric acid and nitrobenzole, was converted into β-naphtochinoline, it seemed probable that anthramine, under the same conditions, would yield anthrachinoline. This investigation was undertaken with the view of determining whether, in this case, the same product would be obtained as that derived from alizarine blue by heating it with zinc dust. Previous examination led the author to believe that the anthrachinoline derived from alizarine blue has the following composition :



Now, as the amido-group in anthramine was supposed to hold the same position as the nitrogen atom in alizarine blue, it was therefore probable that anthramine would yield the same anthrachinoline. This was fully verified by experiment. An anthramine melting at 170° C is. obtained. It forms yellow colored salts which, in solution, possess a very strong green fluorescence. (*Ber. d. chem. Ges. 1884, 170.*) J. H. S., JR.