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of both spaces $i = 0, j = 0$ for cusps; in each of these points the section of the plane with the osculating space of $j = 0$ form the cuspidal tangent. As is known the space $D = 0$, also by the aid of its double surface $i = 0, j = 0$, divides the space S^4 into three parts containing the points for which the number of the real osculating spaces passing through them is successively 4, 2 and 0.

Physics. — Prof. HAGA made, both on behalf of himself and Dr. C. H. WIND a communication: „*On the deflexion of X-rays*”.

Deflexion of X-rays was proved on the experiment being arranged as follows:

The RÖNTGEN-tube was placed behind a slit 1 cm. high and 14 microns wide; at 75 cm. from the latter was the diffraction slit, which gradually diminished in width from 14 to about 2 microns. The photographic plate was placed at 75 cm. from the diffraction slit. Time of exposure from 100 to 200 hours. The image of the slit first became narrower and then showed an unmistakable broadening. From the width of the part of the diffraction slit corresponding to this broadening and the character of the broadening an estimation can be made of the wavelength. It appeared that X-rays exist of about 0.1 to $2\frac{1}{2}$ ÅNGSTRÖM units, comprising 4 octaves.

(A detailed paper will appear in the Proceedings of the next meeting).

Physiology. — Prof. STOKVIS presented for the Library the inaugural dissertation of Dr. G. BELLAAR SPRUYT: „*On the physiological action of methylnitramine in connection with its chemical constitution.*”

At different occasions our member Prof. FRANCHIMONT exposed in our meetings his views about the chemical structure of nitramines, especially of methylnitramine. Till yet the question about the intimate chemical constitution of these compounds, in reference to the manner, in which their nitrogen is linked with the other elements, is an open one. Whereas some authors believe, that the nitrogen of nitramines is linked with hydroxyle, so that the whole compound is a species of nitrite: $H-O-N=O$, Prof. FRANCHIMONT rejects this view, and considers it linked in a cyclical

way, for instance $H-N \begin{matrix} \diagup O \\ | \\ \diagdown O \end{matrix}$ or $H-N \begin{matrix} =O \\ // \\ =O \end{matrix}$. As Prof. FRANCHI-

MONT considered it of some value to study the physiological action of nitramines, to the aim of throwing more light on the open

chemical question, Dr. SPRUYT took the matter in hand in the Pathological Laboratory of Amsterdam. In applying to nitramines and nitrites the well known law of the relation between chemical constitution and physiological action, which is best expressed in this formula: "compounds of homologous chemical structure possess homologous physiological action," we may conclude, that if nitramine should belong really to the group of nitrites, its physiological action must be also that of a nitritecompound. The physiological action of nitrites is a well known one. They are all toxic substances. Dr. SPRUYT considered it as a first step in his researches to state the physiological effects common to all nitrites without exception, to the nitrites as well derived from alcoholic radicals, as to the simple alkali-nitrites. As such he found invariably:

1st the formation of methaemoglobine out of the haemoglobine of the blood in the living body as well as in the blood "in vitro";

2nd dilatation of the arteriolae, and rapid sinking of the arterial bloodpressure;

3rd injurious effects on the intensity of the contraction of the isolated frog's heart, as fast as the nitrites circulate with the blood through it;

4th paralysis of the nervous system in frogs, convulsions in mammals.

In experimenting on frogs and rabbits with methylnitramine-natrium, dissolved in a physiological salt-solution, Dr. SPRUYT never found one of the essential phenomena, which are produced by nitrites. The methyl-nitramine-natrium compound behaved itself in the animal body and its liquids on the contrary as a fast indifferent substance.

If we consider, that nitrite of amyle $C^5H^4-O-N=O$ is one of the best known nitrites, with an eminent toxic action, in which all the physiological effects of nitrites are represented in the most typical way, and if we pay attention at the same time to the remarkable fact, that SCHADOW in his study of the physiological action of nitropentan, which is an isomeric compound of nitrite of amyle never met with one of the essential phenomena, produced in animals by nitrites, the conclusions, which Dr. SPRUYT arrived at, are easily conceived. These conclusions are: that the study of the physiological action of methylnitramine makes highly probable the opinion of FRANCHIMONT about its chemical structure (nitrogen linked in a cyclical way), and is in direct contradiction with HANTSCH's hypothesis, that it should contain nitrogen linked to hydroxyle, and belong to the nitrite-group.