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carefully and fully dried before the heating, they perish unler 60 °C. If now, from these and many other experiences, it is to be concluded that the death of protoplasm arises from assumption of water, then must it be assumed that the forms of living protoplasm conduct themselves in respect to the substances found in the dead forms of the same as anhydrides do to their hydrides or decomposition products, unless some further insight into this matter is forthcoming.

In the most recent times different hypotheses bearing on the chemical structure and peculiarities of living protoplasms have been published; they do not, however, taken together, agree with the known facts. Their mechanical and chemical behavior, so far as they have as yet been investigated, force us to the supposition that one and the same protoplasm, according to the influences which from without are brought to bear upon it, may form [darstellen] two entirely different bodies—different in chemical structure and in action on other organic substances which come into relation with the same, and also in attraction for water.

The protoplasms further effect chemical changes through which, on the one hand, fermentative decompositions, and, on the other, anhydrides, are formed. Both processes stand in such decided opposition to each other that they can not proceed at the same time from one and the same substance. In the plants and animals of higher organization we can ascribe to one cell the one function, and to another the other. In the lowest unicellular organisms this is not possible: in these, both processes must go on in the same protoplasm; they form albuminous substances, fats, glycogen, or cellulose, and such like, and also break up these substances.

It would appear that it is observation of just these lowest, simplest forms of life that enables us to form the clearest conceptions.

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