matter under anaerobic conditions. The gas of the activated sludge process of sewage disposal may also contain 80 per cent. or more of methane.

Recent studies of chemists have aimed to find methods of converting farm wastes such as corn stalks, etc., into a fuel gas, and processes have been proposed which will produce a gas with about 50 per cent. of methane. These results are significant, since methane is exceedingly valuable as a beginning step in the production of hydrogen, ammonia, . . . (NH_3), etc.

Since methane gas, through the increasing use of natural gas and proposed conversion of farm waste, may in the future play a more important part in life, it is well to know all its ecological properties both in nature and in the laboratory.

Methane, it would appear, is a strikingly inactive gas chemically and physiologically, and it is said it can be breathed in concentrations up to 45 to 50 per cent. of the air volume, with no particularly noticeable ill effects aside from a lowering of the oxygen content. It is the active element of the dreaded "fire damp" of coal mines.

The plant life of the Grassy Pond bog would seem to substantiate this inactive physiological behavior, and to the heaths (*Ericaceae*), sedges and other vegetation of these habitats it is perhaps as inert in itself as the free nitrogen which is the necessary diluent component of our atmosphere.

To say the least, marsh gas may be an important environmental factor in some peat bog areas, and under certain conditions may help to create a low oxygen atmosphere in the water and air surrounding the roots of a group of normal associes of these areas, which are highly tolerant of such conditions.

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PATENTS FOR CHEMICAL COMPOUNDS

DR. CHARLES E. RUBY has recently criticized[1] the policy of the United States Patent Office and Courts for granting and sustaining patents for new and useful chemical compounds. He affirms that such chemical compounds are not human creations but are entirely acts of nature. In this he is entirely incorrect. Although many chemical compounds are found naturally occurring, the synthetic methods of chemistry enable many very useful pure substances to be produced that are not found in nature. The conception and eventual construction of new and useful chemical compounds are accomplished only and entirely through the application of human mental and physical activity. This most certainly constitutes invention, for invention can not consist of more or less than the adjustment of nature to human use and needs.

[1] SCIENCE, 89: 387, 1939.

New and useful chemical compounds should be and are classified together with new plants and new machines. A new printing press could, in a certain sense, be called an act of nature; for is not its operation and construction down to the minutest detail governed by the laws of nature? What fundamental difference is there between the concept of a new chemical compound and the invention and construction of it by means of chemical reactions and the concept of a new machine and the invention and construction of it by means of mechanical operations? A new chemical compound is no more made available for human use by nature than is an automobile. If a new engine is invented, a patent may be issued on the engine and not upon the use of lathe and drill press in its construction. Similarly, if a new chemical compound is invented (and it is without question at least as much of an invention as the engine in that it requires as much human ingenuity to conceive and produce it) a patent is and should be issued on the compound and not on the reactions used in its production.

If our patent laws are changed so that new and useful chemical compounds are not given the benefit of patent protection, a considerable amount of chemical research will be immediately stopped and society will lose the benefits of both the research and the new compounds. Restricting the patent protection to the method of production of the compound will not give enough protection to warrant the expense of the research, because once the usefulness of a new compound is shown many methods of producing it can be found.

There is only one minor difference between the construction of a new compound and a machine. The one is accomplished through processes and the other operations; but basically they are the same, as the fundamental laws of mechanics and electricity govern both methods of procedure. From a patent point of view, the birth of the idea, the initial construction, the development and the testing of the results follow the same pattern in both cases.

Our great mechanical improvements of the past were greatly stimulated by patent protection. Let us not now retard our present age of chemical development by withdrawing patent protection.

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THE CONFIGURATION OF GLUTAMIC ACID FROM SCARLET FEVER ANTITOXIN

AFTER reading the remarkable paper by Kögl and Erxleben[1] in which they showed that the glutamic acid, and to a lesser extent some other amino acids of tumor proteins, were partly of the wrong configuration, it

[1] F. Kögl and H. Erxleben, *Zeit. Physiol. Chemie,* 258: 57, 1939.