

normally goes into secretion, motion and growth, into the disproportionate production and waste of heat. The fact that while oxidation is not increased in fever, urea, uric acid and urinary nitrogen generally are markedly increased would certainly appear to point in this direction.

I should be greatly obliged for any references to recent work done upon any of these problems, or for any criticisms of the possible theory of fever or body heat here suggested.

WOODS HUTCHINSON.

SPECIAL ARTICLES.

RECENT OBSERVATIONS UPON DÆMONELIX.

WHILE in charge of a field party sent by the Carnegie Museum to northwestern Nebraska and Wyoming this season, the writer left camp early on the morning of July 4 to study and ascertain the contact between two geological horizons in the Loup Fork Miocene. On the way a locality showing an extensive development of *Dæmonelix* was found. These curious fossils were in great abundance in this place and presented a most imposing appearance. The first impression received was that of a petrified forest emerging from the soft sandstone and gradually disintegrating. For the purpose, if possible, of gaining some additional knowledge with reference to the remains of *Dæmonelix*, the origin and nature of which have led to considerable discussion, the writer stopped and began a systematic examination of the locality. After considerable time had been spent in searching among the broken specimens of *Dæmonelix*, some fragments of the skeleton of a rodent were found below a shelf of sandstone where a *Dæmonelix* partially disintegrated was lying. Carefully picking up the fragments and preserving them, the writer recalled the statement of Professor Barbour that he had found a skeleton of a rodent on the inside of one of these 'twisters' in 1891, and the search was continued with vigor.

It was not long until a nearly complete skeleton was found in the interior of a partially weathered 'rhizome,' which had the base of the upright spiral still in position. Apparently the animal had been in the act of

going out—at all events the skeleton was lying with the head toward the exit, or the spiral portion of the *Dæmonelix*—when it was overtaken by some accident and died.

The work was now becoming interesting and everything else was forgotten in the quest for still further data to support what was rapidly growing to be a settled conviction in the mind of the writer as to the origin of these 'Devil's Corkscrews.' The work was carried on during the entire day in this locality and no less than six specimens of the remains of rodents were found, all of them on the inside of *Dæmonelix*.

The work was not restricted to this locality, but other localities were subsequently systematically worked. Bones were not only found in the transverse pieces or 'rhizomes' of the *Dæmonelix*, but they were also found in the vertical spirals. There were found skulls, jaws and portions of skeletons of what appear to be one and the same animal (*Steneofiber*?). In all there are in the collection made for the Carnegie Museum from twelve to fourteen specimens of the remains of rodents, which were found in as many *Dæmonelices*. A portion of the material was gathered from the typical Nebraskan localities, where Professor Barbour secured the material of *Dæmonelix*, which he has so ably and exhaustively discussed in his papers, which have from time to time appeared in various publications.

It was a pleasure to meet Professor Barbour at his home in Lincoln, Nebr., and to have a discussion with him in regard to this question. Free access was accorded to all of the type specimens. That there are plant remains in the *Dæmonelices* has been thoroughly established. The relation of these rodents to *Dæmonelix* and the probable habits of the animals, and other questions which arise in this connection, may better be determined when the material has been cleaned up and prepared for thorough study. In the meanwhile the writer is led to believe from the facts above recited, that there is but little room to doubt that *Dæmonelix* is the cast of a burrow of a rodent.

When the material has been prepared for

study, fuller examinations will be made, and the results will appear in the publications of the Carnegie Museum. O. A. PETERSON.

CARNEGIE MUSEUM, PITTSBURGH,
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QUOTATIONS.

THE CANCER RESEARCH FUND.

AMONG the facts established by the report is that cancer can be successfully transplanted from any animal into another animal of the same species, but not into an animal of a different species; and this inoculability, so to speak, will hereafter be largely utilized for the purpose of obtaining cancer patients. A single cancer may in this way be passed on, so to speak, through several generations of animals, the original growth and those arising from it surviving all the hosts in which they have successively found the materials for their support; and it is further remarkable that the growth of cancer is found to be of a character unlike the growth of an individual. Every individual life, whether of plant or animal, springs from the union of two parent cells; but, when this union has been effected and the life of the new individual has commenced, its future growth is provided for and maintained by a simple division and subdivision of the cells entering into its several structures. In the case of cancer, however, it has been found that cell conjugation is continuous, and that the growth as a whole may therefore be regarded as a colony of individuals producing offspring, rather than as a part of the tissues of the subject in which it grows. It is so far definitely parasitical in its character; and it is suggested that the means of arresting it may probably be found in the employment of some method by which the cell conjugation occurring in its mass may be prevented. The inquiry will be pursued in this direction; but, while the bulk of the inoculation experiments hitherto instituted have been in small animals, and chiefly in mice, it will be necessary to use larger ones, of species whose life histories have been more carefully studied, for the purpose of investigating methods of treatment likely to prove applicable to the human subject. Perhaps all that can fairly be said, at this

stage of the inquiry, is that the ground has been cleared of much error, and that paths apparently leading towards future progress have been brought to light.

It must be regarded as a matter for much congratulation that the evidence so far obtained does not confirm the popular belief in the increasing frequency of cancer; although Sir William Church, in his speech moving the adoption of the report, was careful to indicate that no absolute conclusion could be reached in relation to this part of the subject. The statistics obtainable, especially with regard to the past, are not sufficiently trustworthy to justify the formation of positive conclusions; while the improvements recently effected in microscopes, as well as in the methods of preparing tissues for examination, have rendered it more easy now than at any former time to pronounce authoritatively on the cancerous or non-cancerous character of any growth that is either removed from the living body or discovered after death. It will be seen from the abstract of the report that a considerable percentage of cases of suspected cancer have been discovered, on microscopic examination, not to be of that character; and the superintendent, Dr. Bashford, points out that this affords a probable explanation of a good many reputed 'cures' of the disease. A fact of equal importance is that really cancerous growths are not attended in their early stages by any special symptoms from which their character can be detected with certainty; and on this the report founds a strenuous recommendation that all growths which are even possibly cancerous should be removed by operation without delay.—The London Times.

NOTES ON INORGANIC CHEMISTRY.

RADIUM AND RADIOACTIVITY.

THE study of radium and radioactivity continues with unabated zeal, and new light is being continually thrown upon the subject. Naturally Sir William Ramsay must be recognized as one of the foremost workers, and whatever comes from him carries great weight. For this reason great interest attaches to a recent communication of his in the *Comptes Rendus* on the radium emanation, for