

corded ; but perhaps the use of strychnia, diuretics, massage, and galvanic currents is the most applicable to those arising as secondary results to local inflammations, while diaphoresis and other remedies would properly be exhibited in gouty or rheumatic cases.

BACTERIOLOGY.

Ptomaines.—(Translated from a lecture by Dugardin-Beaumetz, at Hospital, Cochin.)

Messieurs,—In my first lecture I told you the new results in prophylactic hygiene which have been derived from the knowledge of pathogenic microbes on the one hand, and on the other, from the discovery of poisons which the economy is elaborating at every moment, ptomaines and leucomaines. This prophylaxy, indeed, ought to place us not only under protection against the diseases which come from without and of which the pathogenic microbes are the factors, but also furnish us with the means of expelling from the system the poisonous matters which tend to accumulate there, for, as Bouchard has very well said, "this organism is in the normal as in the pathological state, a receptacle and a laboratory of poison."

In the preceding lecture I have shown you as briefly as possible the principal pathogenic microbes ; it now remains to me to take up this great and important question of organic alkaloids. The question which I am going to take up is most complex, so I ask your very kind attention in following me in the developments in which I am about to enter, and in order to systematize my subject I shall divide it into two parts: in the first I shall study ptomaines, in the second, leucomaines.

The name of ptomaines (*ptoma*, dead body) is given to the alkaloids furnished by putrefaction ; their discovery belongs to the year 1872. Already had been observed the virulence of certain cadaveric extracts. It was in this way Gaspard and Stich had set forth the very great hurtfulness of these extracts ; thus also that Panum obtained in 1856 from putrefaction, a poison which he compared to the venom of the serpent ; thus also that Dupré and John Bens in 1856 extracted from corpses an alkaloid which they compared to quindoline, and to which they gave the name of *quindoline animale*. Similarly in 1868, Bergmann and Shmiedeberg discovered in the wort of putrefied beer, then in the blood, a morbid poison which

it was formerly thought played an important part in the origin of septicæmia, sepsin.

Again, in short, was it that in 1869, Sonnenschein and Sulzer, studying from a chemical standpoint anatomical macerations, found in them an alkaloid having an action analogous to atropine and hyoscamine, until we arrive at the discoveries of Gautier and Selmi, which thus bring us up to the years 1870 and 1877.

It was Gautier who first discovered that the fibrine of the blood exposed during the summer under a layer of water produced complex alkaloids fixed or volatile. At the same time, Selmi, professor of Legal Medicine in the University of Bologna, in making medico-legal examinations or reports had proved by analysis the presence of alkaloids which were distinct from those already known.

In 1872, Selmi communicated the result of his first researches in announcing that there were in the stomachs of persons having succumbed to a natural death, substances analogous to the vegetable alkaloids, and which were neither creatine, nor creatinine. To answer the numerous objections which were made to him, and which bore especially upon the possibility of the introduction of these alkaloids in the food, Selmi then reproduced in 1877 the experiments of Gautier, and announced to the Academy of Bologna at their *séance* of the 6th December, that in submitting to putrefaction pure albumin protected from the air he had obtained two alkaloids. From this time forth researches increased with great rapidity.

Nencki proves that the digestive action of the pancreas on gelatine produces a special alkaloid, which is given the name of collidine ($C_8H_{14}A_5$) and isolates it in a state of purity. Then Gautier and Etard find in the putrefied flesh of the *scombre* and of the horse several other bases and especially hydro-collidine $C_8H_{14}A_5$. In 1883 Guoreschi and Mosso proved the presence of a pyridic base $C_{18}H_{15}A_5$, in the fibrine of putrified beef. Gabriel Pouchet again finds two bases having for formulas $C_7H_{18}A_5O_6$ and $C_6H_{12}A_5O_4$. Brieger has studied successively the ptomaines of peptone, then those of meat, and putrefied fish, and lastly those of cheese. Tanret proved in 1882 that peptones give most of the reactions of alkaloids, and Brieger showed that by acting on moist fibrine with pepsin, a poisonous alkaloid, peptotox-