necessity either to deny him the benefit of an anæsthetic, and often by so doing increase his risk through shock, or to select an anæsthetic or method which is peculiarly free from risk to life. Under such conditions, many may die, and the statistical method would, by recording such deaths against the practically innocuous anæsthetic which was selected, create a spurious death-rate for it. Statistics, as obtained from death certificates in various countries, are certainly incomplete. Many deaths due to an anæsthetic are recorded as 'heart failure,' or some similar condition. Again, in the case of coroners' inquests, the patient who dies through stress of the operation is often assumed to have died from the anæsthetic if he was under its influence when death occurred.

The Nature and Gravity of the Operation.—This is another factor, which has made itself evident in the illustration just given. Now, in all the statistics at present in our hands, the grand totals merely reveal the actual number of deaths occurring under any given agent: no account is taken, either of the method adopted, itself often as important as the anæsthetic: of the experience and ability of the administrator: of the nature of the operation—for example, whether it was upon the air-passages, and so likely to cause special dangers under the anæsthetic: of the severity of the operation, its duration, and the degree of trauma it necessitated: of the condition of the patient as regards resistive power: or of the presence of intercurrent toxæmia, asphyxia, shock, and so on.

The only exact method of arriving at the incidence of danger of anæsthetics is by experiment, but here again the plan supplies less information than we need in the present investigation. It tells us that any given anæsthetic, or succession or mixture of anæsthetics, acting under known conditions of time and circumstance, upon normal individuals, will produce certain results. We can estimate the progressive effects of increased concentration, or of limitation of oxygen or of carbon dioxide: but although we can crudely reproduce a few pathological conditions, we cannot with certainty learn by this means what are the effects of the interaction of either anæsthetics or analgesics upon diseased tissues. The perversion of the nerve-controls existent in cases of exophthalmic goitre, the conditions grouped under the term lymphatism: those conditions which underlie the fatal so-called delayed chloroform poisoning: these are incapable of experimental reproduction in a form which would enable us to estimate the incidence of danger when anæsthetics are in use in their presence.

We must, however, consider as the first step in arriving at a process in any type of patient under any anæsthetic, the accepted physiological behaviour of the anæsthetic towards normal individuals: and next, since pathological states are but variants from the physiological, we can deduce the probable effect of any given anæsthetic when acting upon a patient with a known morbid lesion. For example: we know that nitrous-oxide gas lowers the actual oxygen content of the blood and tissues: further, that at a point this declension will