At present all must be classed as normal vaccination which do not induce the appearance of any defined lesions other than those attendant upon the disease "cowpox' in its mildest or its severest form.

In comparing the findings of to-day with those of a few years ago the first irregularity we meet is in the period of incubation. The usual time allowed for the appearance of the papule is from three to five days. With the glycerinated lymph, however, I find that in a series of 355 successful vaccinations the average date for the appearance of the papule was between the eighth and nineth days, the earliest being on the fourth and the latest on the fifteenth day. To collect these figures I personally observed 500 cases, 58 of which were primary vaccinations, all of which were successful, and developed the papule on the seventh day (average); of the remaining 442 a number had been vaccinated within the last year and the vast majority of the 145 unsuccessful cases during the last five years. Here I might allude to the doubt that exists in the minds of many as to the virulence of the glycerinated lymph. I think that the result in this series should demonstrate its efficacy; 71 per cent. of successful vaccinations is a very satisfactory result when we consider that the great majority were cases of re-vaccination many within a short period, and the greater number were among school children and men in shops where a personal direction as to the subsequent care of the part was necessarily limited.

To return to the question of the lengthened period of incubation, we must bear in mind that the old lymph "non-glycerinated" owed a great many of it attendant sequelæ to extraneous influences, the explanation that most readily offers itself is that the inflammatory action which we used to get on the 3rd and 4th days was due to the inoculation of these bodies which are invariably found at the seat of inflammatory action, and was not the true reaction following the inoculation of the "isolated" virus. That the presence of these outside influences served to stimulate the activity of the vaccine I have not found inasmuch as the progress of the symptoms, from the appearance of the papule to the formation of the ultimate scab has not been lengthened perceptibly.

Another feature which must be remembered in connection with the irregularity of the appearance of the reaction is the difference in the degrees of the virulence of the samples of lymph used and that this variation in strength should exist is not to be wondered at when we consider what a sensitive body glycerinated lymph is.

In a later paper you no doubt will be told how susceptible it is to the influence of both light and heat and how a thoughtless chemist or physician may expose his stock to either one or the other, the proximity of a register or an open package in a surgery will I am sure account for a great number of not only delayed and weakened reactions but of unsuccessful vaccination.

Following the appearance of the papule we find that the eruption passes through the same stages as described in text books, namely, vesication, with umbilication and marked areola; pustulation and scabbing, and finally desquamation, with the foveated cicatrix. Just here I might warn against the acceptance as a thorough reaction any other than those