

Another group of cases requiring consideration is the jaundice and hæmorrhagic group. These cases suggest a toxæmia. The absence of bacteria from blood-films, from smears of the internal organs, and the failure of cultures suggest that the toxin may be derived from the mother.

It is now believed that deficiency of vitamine D permits chronic infections to occur in persons otherwise resistant. Possibly dietetic defects in the mother may be a factor in these cases.

It is hoped that when a sufficient number of cases has been examined the summary and analysis of the post-mortem and histological findings may throw valuable light on the problem.

In conclusion, I desire to express my indebtedness to those who have so willingly assisted me in this inquiry, particularly the staff of St. Helens Hospital, Wellington.

Probable Cause of Death.

Congenital malformation	5	Toxæmia of pregnancy	1
Placental insufficiency	3	Prematurity	1
Prolapse of cord	2	Suffocation by inspired fluids	2
Cord round neck	3	Shock	1
Cerebral hæmorrhage	4	Cause not obvious (maceration)	5
Fœtal anasarca	1		
Jaundice	3		31

PART II.—SUMMARY OF REPORT ON AN ATMOSPHERIC POLLEN SURVEY, DUNEDIN, SUMMER, 1928–29.

By MORRIS N. WATT, M.B., Ch.B.

The following report is the outcome of an investigation upon the wind-borne pollens in order to correlate the atmospheric pollen content and hay-fever symptoms, upon the distribution and relative abundance of atmospheric pollens other than grasses which might be influencing factors in the patients in whom desensitization to grasses gives only partial relief, and to determine the factors influencing pollination.

During the months of September, 1928, to February, 1929, inclusive, an intense survey was made of the atmospheric pollens of Dunedin. Prepared plates were exposed eight hours daily, and the pollen-grains upon them counted over a standard area, and as far as possible identified. To make the task of identification possible, frequent observations were required to be made in the field in order to obtain a knowledge of the plants pollinating and their relative abundance, and, further, to obtain and mount for permanent reference and examination samples of all the available wind-borne pollens. Constant meteorological observations were made and correlated with the pollen findings. Further observations were made of hay-fever patients with regard to duration and intensity of symptoms, and the results correlated with the rest of the data. During the grass season investigations were conducted to determine as closely as possible the weight of pollen produced by the more important grasses, so that some knowledge might be obtained not only as to the intensity of pollination, but also as to approximately the area of ground to be sown next year for supplies for prophylactic treatment. In addition to the above, considerable amounts of pollen of the more important grasses were collected for extraction, and also pollen of the abundant early summer trees for future diagnosis and possible treatment.

In all, 688 plates were exposed and examined, giving a total pollen count of 40,500 grains. One hundred and fifty permanent microscopic preparations of the more important pollens have been prepared, and a herbarium established of fifty of the chief grasses of this district.

FACTORS INFLUENCING POLLINATION.

It was clearly shown during this investigation that hay-fever symptoms bore a direct relationship to the abundance of pollen (chiefly of grasses) in the air. The chief factors concerning this are: First, abundance of the particular plants; second, the intensity of pollen-production; and, third, the length of season of bloom. These are in their relative order of importance.

The first and most important factor necessitates careful and extensive field survey of any district. The present report shows which plants we have most to contend with in Dunedin; it also shows that similar surveys should be made in other districts, since the most important plants here are certainly not the most important farther north.

The intensity of pollen-production depends on two factors—namely, the individual plant's own capacity, and, secondly, meteorological conditions which hasten or retard this. Accurate meteorological observations were taken throughout the summer, and their bearing on pollination investigated.

Rainfall has two effects on the atmospheric pollen: it first washes the atmosphere clean, so that on wet days and days just after heavy rain the air is almost free of pollen; secondly—and this especially in the case of light rain combined with a high temperature—it causes an increased production of pollen. Sunshine plays a part in pollination, but is dependent on temperature to produce any marked effect. Humidity, solar radiation, &c., play but a very small part, and alone are of little or no importance. Temperature is perhaps the greatest factor of all. All these factors, however, are quite dependent on another; it does not matter how much pollen is produced, it cannot get into the air without the action of the wind. A light wind is all that is necessary; strong winds certainly do produce an enormous concentration of pollen in the air at first, but later tend to clear the atmosphere unless the other factors mentioned above contribute to an increased pollen-production.