wheats; samples of Velvet (P 812) and Pearl (P 811) were average samples. A sample of College Hunters from Ellesmere was a good wheat, with 12·19 per cent. protein. Lastly, from Eyre came the excellent sample of Burbank's Super, referred to at length in a previous paragraph.

SUMMARY AND CONCLUSION.

Wheats may be classified into (*a*) strong, (*b*) medium-strong, and (*c*) weak samples.

On examining Table II it will be found that in 1922 one variety, Velvet, stands out as being generally the best wheat grown in its district. In particular, when grown in the drier parts of Tuapeka and Upper Taieri districts bordering on the area of lowest rainfall in New Zealand, three samples of Velvet are conspicuous even among strong wheats. Varieties which, although represented often by single samples, give promise of being wheats of good strength are Burbank's Super, Thew, and Huron. Others which appeared to be good medium-strong wheats are John Brown, Dreadnought, Marquis, and Rymer.

It is apparent that variety has a considerable influence on strength. Some varieties maintain a relatively high standard under different environments; such a variety is Velvet. Others show a fairly large range in protein content, some samples containing high percentages of protein; but the average for such a variety may often be low. In such a case, notwithstanding these better exceptions, the variety as a whole must be regarded as a soft wheat. Only in special cases, such as suitability of climate and soil favouring production of the better samples of the variety, should such a wheat be grown—from the milling and breadmaking points of view.

Another important factor is that of climate, samples from some districts showing to distinct advantage. It will be noticed that the drier districts in general produce stronger wheats. To a marked degree this is true of Central Otago, a notably arid district, as evidenced by the samples from Tuapeka and Upper Taieri. This is what one would expect from data published in other countries where it has been observed that comparatively high temperatures, long days, and absence of excessive moisture during ripening, hasten maturation of the grain and increase its content of gluten, and hence its protein (8 and 11). There are probably other districts in the Dominion with characteristic climates which the examination of further samples will prove also to be specially adapted to the growing of strong wheats.

It is probable that no one variety possesses combined the desired characteristics of yield per acre, protein content, flour-yield, weight per bushel, and the required milling-qualities. Evidence may be obtained, however, by experimental milling and chemical investigation, indicating which varieties combine most of these qualities and are therefore most profitable to grow or to use for selection.

Finally, although individual samples may often be regarded as possessing the elusive quality of strength to a marked degree, a variety may be classified as a strong or medium-strong wheat only from data obtained from many individual samples and extending over a period of years.