known as "corkwood," on account of the exceptional lightness of the wood, which, because of this quality, was used by the natives for floats.

2. "Studies on the Chemistry of the New Zealand Flora: Part II., the Karaka-nut," by Professor Easterfield and Mr. B. C. Aston. (*Transactions*, p. 495.)

Twenty years ago, said Professor Easterfield, the late Mr. W. Skey, in the intervals of his official duties, pursued some investigations into this subject, and succeeded in isolating a white bitter substance, intensely poisonous, to which he gave the name "karakin." The quantity obtained was too minute to allow of thorough investigation, and Mr. Skey's results could therefore be accepted only as provisional. The melting-point of the substance was below 212° Fahr., or the heat of boiling water, and it was described as containing no nitrogen. He had begun the investigation *de novo*, and, though Mr. Skey had done excellent pioneer work, further investigation did not bear out all his conclusions. The karaka (*Corynocarpus*) was a tree well known throughout New Zealand. It was also found in some of the other islands of the Pacific, notably at the Chathams, where it was abundant, and on account of the absence of timber was an important tree—so much so that it was customary to inscribe symbols of ownership on the bark. A trunk in the Museum now had a mark of this kind, supposed to be a "portrait" of the former proprietor. The wood, however, was of little use as timber. One point he had been unable to ascertain, and he hoped that inquiries, if necessary, would be made and definite information obtained while a remnant of the Moriori people of the Chathams still survived—did they, like the Maori, prepare the kernel and use it as an article of food? The fruit of the karaka was a berry, the pulp of which some people esteemed. To him its taste was objectionable—suggestive of decayed dates. Within was a thin shell, enclosing a kernel possessing the qualities of a nut, and from which could be obtained a thick oil. [The oil, which was shown, was of a very dark-brown colour, and so thick as to appear almost solid, scarcely moving though the bottle was inverted.] This oil contained oleine and yielded oleic acid. The thickness of the oil was due to its association with vegetable wax. [The wax, pure white, was shown separately.] The poison did not reside in the oil, which was innocuous, had no bitter taste, and was just such as might be found in any of the sweet nuts. To prepare the kernels for food the Maoris first cooked the berries, which would have the effect of loosening the textures of the kernel and rendering it more accessible to the water in which it was afterwards soaked for a period varying from a few days to some weeks, when the poisonous constituents had disappeared. Mr. Skey, finding that the extract from the berries heated to boiling-point lost its bitter taste, inferred that the cooking was sufficient, without the subsequent process, to render the kernel non-poisonous. But he (the professor) found that if the nut was boiled in water prussic acid was given off. Now, only two other similar cases were known, and the only known substance yielding prussic acid by decomposition in this way was amygdaline, found in bitter almonds, peach and cherry kernels, &c. It seemed reasonable to infer that the karaka contained amygdaline or some analogous substance which by decomposition yielded prussic acid and a specific poison, while there was the alternative possibility that the poisonous effect of the kernel was due only to the prussic acid. There was another point of resemblance to the almond. From the original solution in water ether removed practically nothing, but if the solution was boiled and the prussic acid driven off then ether became effective as a solvent. Amygdaline isolated was not poisonous. It was found associated in the almond with a substance known as "emulsin," a kind of ferment closely allied to diastase, and to certain digestive ferments produced in the glands of animals. If a kernel containing these two substances was crushed in water, the action of the emulsin upon the amygdaline produced an immediate decomposition, prussic acid being formed. The natural ferment in the saliva produced a similar result on amygdaline, though in less degree. By numerous solutions and crystallizations he had isolated a white, bitter, poisonous substance, for which he had retained Mr. Skey's name of "karakin," though he could not absolutely say it was identical with Mr. Skey's product. For one thing, it contained a considerable proportion of nitrogen, and its melting-point was as high as 250° Fahr. If Mr. Skey's karakin was impure the lower melting-point would be accounted for, and there were two classes of substances that would resist Mr. Skey's test for nitrogen, this being one of them. In Mr. Skey's test he looked for the nitrogen to come off in the form of ammonia, whereas another reaction would take place and cyanide of sodium be formed. In addition to the karakin he had isolated another white crystalline substance, very similar in appearance, which he called "corynocarpin" [exhibited], with a higher melting-point than karakin. In addition to the wax he had found also mannite, a substance closely allied to sugar. Karakin he described as a glucoside—formula probably $C_{15}H_{24}N_8O_{15}$. It was interesting as the third example known in the vegetable kingdom of a substance which in its breaking-down yielded prussic acid, the first being the amygdaline of the almond and the second the *Lotus arabica*. Much still remained to be done in investigating the properties of karakin, as well as of the specific poison of the tutu. In the present case the amount of the sought-for glucoside amounted to 0·1 per cent. of the material tested, and there were fifteen crystallizations before a perfectly pure product could be obtained. The process was slow, laborious, and costly, and he was glad to say that the Royal Society had granted £50 towards the expense of the work on which he and his colleague were engaged.

3. "Raoult's Method for Molecular-weight Determination," by Professor Easterfield and James Bee. (*Transactions*, p. 497.)

These methods, the professor said, were practised in the laboratory of the Victoria College, and were easily within the reach of first-year students. They gave accurate results, and were performed in turn in the course of instruction by each member of the class. One of these methods, which was devised by himself, was to determine readily the densities of vapours at the actual boiling-point, a very difficult process by the usual methods—so difficult that densities were usually taken at a much higher temperature, leaving the density at the moment of vaporization uncertain. Already valuable results had been obtained with many substances, but so far his process had not been successful with mercury, in dealing with which special apparatus would be necessary. He thought, from his researches so far, that it might yet be demonstrated that the mercury atom consisted of two molecules.

The second part of the address was illustrated by an experiment in measuring and calculating molecular density by Mr. James Bee, of Wellington College, illustrating the simplicity and brevity of the method.

Two very large trout from Spring Creek, near Blenheim, belonging to Mr. T. E. Donne, and mounted by Mr. A. Yuill, taxidermist to the Museum, were on exhibition.