

FROM TIP TO CLIP

... The "46" is up-to-the-minute, with engine turned, rolled gold or sterling silver slip-on cap, and a colour choice of black, blue, maroon or dove-grey barrel. You get years of happy writing with the silk-smooth, 14-ct. solid gold,

IT'S NEWS!

osmi-indium tipped nib of the Mentmore "46". Before, you've only hoped for such a pen at such a price—but skilled British technicians and workers have now designed this pen for long and faultless service.

MENTMORE
MADE IN ENGLAND

46

FOUNTAIN PEN

Sterling Silver Cap 57/6
Rolled Gold Cap 67/6

Trade Enquiries only to Ponsford, Newman & Benson (N.Z.) Ltd., 128 Wakefield St., Wellington

Bread, Butter and Benergy



There's nothing tastier than a Benergy sandwich—gives an edge to the appetite—spreads easily—new different flavour. Benergy, grand combination of vegetable, yeast and meat extracts. Full of goodness and nourishment for lunch-time and after-school sandwiches.

Try Benergy as a drink, too—more appetising than beef tea.

From all Chemists and Grocers
—new type 8oz. carton, 2/1½

B6.10



"GIFFORD OF WELLINGTON" A Tribute to a Great Scientist

Written for "The Listener"
by S. H. JENKINSON

ONE of the great scientists of the world is dead. He devoted his life to what is surely the highest field of science, "The Genesis of Worlds and Systems" (to quote the title of one of Bickerton's addresses in Christchurch in 1878), and he achieved such eminence in his special field that when the London *Spectator* attempted a few years ago to sum up world theories of the origins of the stellar universe, it gave a few lines each to the views of Jeans, Jeffrey, and Eddington in England, and of Chamberlain and Moulton in America, and then introduced the major half of the article with the words: "But Gifford of Wellington says."

Algernon Charles Gifford was born at sea off the Cape of Good Hope on Good Friday, 1861. His father was a Church of England clergyman, transferring from the vast and lonely parish of Labrador to that of Waitaki in a greener and more pleasant land. The boy received his primary education at the grammar school in Oamaru and when he was 15 was sent to England to complete his studies. After a term at a church school at Denston, in Staffordshire, he gained a "sizarship" to St. John's College, Cambridge, specialising in astronomical mathematics. Much to his astonishment (and the writer's) he was awarded his college blazer in football. He duly graduated as fourteenth Wrangler and won the Herschel Prize in Astronomical Mathematics in 1880.

Waitaki High School was founded shortly after his return to New Zealand and Gifford became its first mathematical master in 1883. After six years he was tempted to Christ's College, Christchurch, but his appointment was abruptly and somewhat mysteriously ended after three years there. However in 1895, shortly after Firth's transfer from Christ's College to the Headmastership of Wellington College, Gifford became Mathematical Master at Wellington and the long and happy association of 32 years followed. There are thousands of old boys of that school who, if they read this article, will be much astonished to learn that their old friend "Uncle Charlie" was acknowledged by the scientific world as an outstanding genius. He retired about 1927 to his garden home at Silverstream in that lovely road where it is "always afternoon", nay, where it is always *Sunday* afternoon (except of course, on Sundays) and there he lived till this year.

Association With Bickerton

The unhappy period in Christchurch had for Gifford one solace—he developed association with Bickerton and was profoundly stirred by the new and iconoclastic theories of that genius in stellar physics. Bickerton stipulated that all stellar systems were derived from the impact of stellar bodies, that these collisions were constantly occurring and causing, if complete, the whirling coalescence of the two bodies, and if partial, the formation of new bodies with, in both cases, the alteration of velocity energy into heat energy. This concept changed the then current view of a dying universe into that of one that is being perpetually rejuvenated by the alternate

conversions of kinetic into heat energy. A very fascinating theory, this, but one that required long and arduous mathematical investigation in the state that Bickerton left it, before its truth could be proclaimed.

Gifford had an extraordinary flair for astronomical mathematics, in which special field he was unrivalled; and he devoted his life to the task of showing mathematically that other theories of the origin of stellar systems were untenable, and that Bickerton's theory held no flaws. For 50 years he calculated, spoke and wrote in support of this theory and to-day astronomers throughout the world acknowledge its perfect feasibility. Scientists who may have hardly more than heard of Bickerton or Gifford now realise the basic objections to the older theories and accept partial impact as at least a possible explanation of the genesis of stellar systems and particularly of the solar system.

Second Theory

His life work concerned what we call the infinitely great but curiously enough towards the end he dealt with what we call the infinitely little and it is possible, nay probable, that it is for the new theory he propounded in this field that his name will eventually become more famous. In January, 1944, he published in a small journal called *Southern Stars* (the journal of the New Zealand Astronomical Society), a paper entitled "A possible explanation of gravity." (One is reminded of a similar triumph of understatement when Rutherford in 1922 entitled his epoch-making paper on the transmutation of the elements "An anomalous effect in nitrogen.") Readers may know that Newton himself could not conceive of action at a distance and while not denying that the apple fell, could not arrive at an explanation of the cause of its falling. Now, Fournier D'Albe in 1907 published a book *Two New Worlds* in which he developed the mathematics and physics of the Infra-World of the atom and the "Super-World" of the astronomer. About 1935 Sir Shah Muhammad Sulaiman, an Indian judge, developed a new theory that questioned Newton's assumption that the velocity of transmission of gravitation is infinite. This work, which incidentally conflicts fundamentally with the theories of Einstein, was brought to New Zealand notice by Gifford, as was Sulaiman's new corpuscular theory of light.

Stimulated by these three theories Gifford ventured to explain gravitation as a result of the bombardment of each celestial body by infinitely small particles radiated from every other celestial body, by, in fact, the light of Fournier D'Albe's Infra-World. This bombardment is from all directions so that its reaction on any isolated body is equalized, but where any body is shielded by another body the result will be two reactions forcing the bodies together with a force depending directly as their

(continued on next page)