WHEN SKY-GAZERS SHOULD RUN

New Stars And Atomic Bombs

(Written for "The Listener" by A. C. GIFFORD, M.A.)

THE atomic bomb seems to exceed in violence all other explosives known on earth at the present time, but it sinks into utter insignificance when we compare it with explosions seen in the sky. The latter have played a most important part in astronomical history, turning some of the world's greatest scientists into astronomers.

The unknown object that inspired Hipparchus was probably a comet, but those that gave inspiration to Tycho Brahe and to Kepler were both Novae, or what are popularly known as Nero Stars. In his account of this Tycho says: "I was so astonished at this sight that I was not ashamed to doubt the trustworthiness of my own eyes. But when I observed that others, too, on having the place pointed out to them, could see that there was really a star there, I had no further doubts." This was on November 11th, 1572. Nearly 32 years later Tycho's successor Kepler saw another brilliant Nova, this one in Serpens. It is remarkable that these two great astronomers each saw a Nova that rivalled Venus in brilliancy, for such sights are very rare.

In Wellington One Night

The greatest this century appeared on June 8, 1918. When all were enjoying their first sleep the telephone rang and we heard that G. V. Hudson had discovered a New Star. With Dr. C. E. Adams, Government Astronomer, it did not take long to get to the Wellington College Observatory. There, with the help of the 5½-inch telescope, we were thrilled to watch this glorious Nova getting continually brighter and brighter throughout the night. We found later that it increased altogether 40,000 times in brightness. Imagine what it would mean if our Sun were to behave like this. But it is not likely to do so without interference, and no other star now threatens it.

Bickerton Explained It

Everyone must have wondered what could cause so sudden and stupendous a transformation of energy. Innumerable ridiculously inadequate suggestions were offered. Few realised that a satisfactory scientific explanation had been given more than forty years before, when Professor A. W. Bickerton, of Canterbury College, in accounting for a fainter outburst in 1876, pointed out that practically all stellar collisions are oblique. In such partial or grazing encounters, since the stars meet with a relative velocity of several hundreds of miles per second, the parts that are in one another's way have most of their velocity destroyed and turned into heat, while the wounded stars pass on.

Bickerton traced in detail the marvellous series of changes that take place and was laughed at for saying that hydrogen would rush out from the cosmic spark with a speed of at least a thousand miles per second. Many years later, when the spectroscope was applied to measure the speeds of the escaping gases, velocities of 2000 and 3000 miles per second were found. These speeds are so much above the critical velocity of escape that gravitation is powerless to reduce them more than very slightly, and if a Nova is sufficiently bright, the radius of the hydrogen shell, after ten years, may still be found to increase at the rate of a hundred million miles per day.

Run!

A marvellous amount has been learnt already from such Celestial Encounters, but they can still teach us much about the behaviour of familiar atoms under conditions of temperature and pressure unknown on Earth. So, when you discover a New Star, it is extremely important not to lose a minute, but to report it at once to the Dominion Observatory, the Radio, and the Press, and to the nearest astronomer you know. The change in such a star may be greater in a second than usually takes place in a thousand years.

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actually accomplished. No one would question the value of these studies in general: the point is that the author, by writing something that is neither history nor art, does not do *himself* justice. He tells us much that few of us knew or still remembered; tells it plainly and with sympathetic insight; but still inadequately. It is good when an author leaves his readers asking for more; but if the reason is that he has aroused expectations and not met them, it is not ungracious to complain.

OBSERVATIONS AT FEILDING

THE FEILDING COMMUNITY CENTRE. By A. E. Campbell. New Zealand Council for Educational Research.

COMMUNITY CENTRE is beginning to be what the lady of legend called Mesopotamia—a comfortable term that may or may not mean something. To many people it still means anything between a club-room and a university extension centre, and of those who have more accurate knowledge very few have recent experience. So it is interesting to have the story of the Dominion's only functioning Centre told by a man who knows what such places are equipped to do, what this particular place has already done, what developments are likely in the future, and what effect they may be expected to have in the life of such a society as New Zealand must always be. The Feilding experiment is seven years old. It began in 1938 with the appointment of Mr. and Mrs. Somerset to the staff of the Agricultural High School with instructions to organise a new method of adult education in a rural area. It is still feeling its way in certain directions, and Mr. Campbell is not yet prepared to say that it has already answered the question that lay behind its establishment in the first place: whether community centres should be established on a national scale. He *does* say that Feilding has established a case for the establishment of centres in other places, and he would go further than that if he felt sure either that there are other Somersets available or that people who are not Somersets could achieve comparable results.

ACKNOWLEDGMENTS

THE ARTS IN NEW ZEALAND (June-July). Harry H. Tombs, Ltd., Wellington.

Another issue of the most heroic venture in New Zealand journalism—a periodical devoted wholly to culture. Poetry, criticism, and reproductions of recent paintings.

POETRY: The Australian Quarterly of Verse.

Poems by a few known and many unknown writers in Australia and New Zealand, and an earnest request for more.