

THE GUARDIAN

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"The Strongest Memory is Weaker Than the Weakest Ink"

CHARLOTTETOWN, FRIDAY, FEB. 1, 1952

Farmers' Incomes

Among the subjects discussed at the Federation of Agriculture annual meeting in Montreal recently was the gross and net income of farmers in Canada in 1951, the amount of income tax paid by farmers, and the efficiency of farm operations in Canada.

Nobody claimed that Canadian farmers did not have a good year in 1951. Agriculture Minister Gardiner mentioned gross income of nearly three billion dollars, double the wartime average and more than four times the five-year prewar average.

The very size of the total gross income, or the cash income which was estimated at around two billions, gave grounds for much of the criticism that was being levelled at farmers today, other speakers declared.

One delegate went even further. His argument was that "cash income" meant totally different things to the farmer and to the city workman. In the latter case it meant "take home" pay while the farmer had to meet expenses and pay considerable on his investment out of the cash income he received.

And President H. H. Hannan had something to say on the matter of farm efficiency. Despite a 15 per cent decrease in agricultural workers, farm production in Canada had increased 35 per cent over pre-war years.

Power From The Atom

Atomic power will help roll back Canada's frontiers predicts the Rt. Hon. C. D. Howe, Minister of Trade and Commerce and Minister of Defence Production.

When that day dawns, however, it will not merely be the great undeveloped areas of the northlands that will feel a vitalizing impulse. The availability of power at moderate rates will stimulate areas such as this Province which lack hydro potential and must bring in coal and oil from outside points.

No Arms Standardization

A year or more ago the official announcements from the Defense Department at Ottawa were full of references to plans for equipping the Canadian infantry with the U.S. Garand rifle, and the artillery with American-type mortars and heavy guns.

for the production of equipment of the U.S. pattern, thus further co-ordinating defense production with the United States.

According to a report from the capital a few shipments of Garand rifles have been received, but the Canadian brigade sent to Europe is equipped with the Lee-Enfields and other U.K. type weapons.

The first old age pension cheques were delivered in the city yesterday.

Leap Year February with it's 29 days. Who would go to Miami these days shivering in a temperature of 44 degrees?

Many prospective American tourists are not waiting until Groundhog Day to see if they will have the kind of weather here they want but have already made enquiries about an Island holiday.

"Cutting off their noses to spite their faces." A Reuters message from Glasgow dated Sunday 27, says: "Lord Beaverbrook's Scottish Sunday Express did not appear today because of an unofficial strike by pressmen and shipping department employees.

An official civil defense insignia which will identify trucks, buses and other vehicles registered for civil defense service is being issued by federal authorities this week, according to the business magazine Bus and Truck Transport.

The Governor-General Alexanders, who are now leaving us after six years occupancy of Rideau Hall, Ottawa, do so with the keenest regret. They are not wealthy, as some of their predecessors were, and they realize the opportunities Canada has for the raising of their children who are later to become Canadians with a view to making their fortunes here.

Montreal is to spend \$6,120,000 to transform St. Helen's Island into a recreation centre. Already \$2,705,000 has been spent on the project, and \$1,915,000 will be required next year to complete and develop the elaborate plans.

George Cruickshank, caricaturist and artist, died this date 1878. In caricature he carried on the work of Rowlandson and Gillray, but without their ferocity and coarseness; in humorous drawing he stood alone, and as an illustrator of novels, including those of Scott and Cervantes, he has not been excelled.

Ontario dairymen are concerned about the marketing of low fat-content milk to which vitamins have been added. The objection is that "it lacks that special taste appeal which people want in their food."

The Laborers Protective Union have a record of which they have every reason to be justly proud. From small beginnings, but with characteristic determination, they have built up an organization second to none in the Province.

We have not a few "played-out" farms here which do not provide a living for their occupants. Equally unfortunate are thousands of farmers in the U.S., but the Government there is prepared to do something to remedy matters.

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In Or Out?



The Poet's Corner

JONAH A cream of phosphorescent light floats on the wash that to and fro slides round his feet -- enough to show Many a pendulous stalactite Of naked mucus, whorls and wreaths And huge festoons of mottled stripes And smaller palpitating pipes Through which a yeasty liquor seethes.

Old Charlottetown

"The City of Charlottetown is now emphatically a wooden one; and from the number of new buildings constantly going up, we may safely suppose that any additional erections will tend to facilitate a universal conflagration, should such unhappily occur."

The Age-Old Story

God, who at sundry times and in divers manners spake in time past unto the fathers by the prophets, hath in these last days spoken unto us by his Son, whom he hath appointed heir of all things, by whom also he made the worlds;

To Win Chinese Confidence

One important aspect of the appointment of General Sir Gerald Templer as High Commissioner of Malaya, with full and direct responsibility for both civil administration and all military and police operations, has hardly been given sufficient emphasis in most Press comment in the U. K.

Notes By The Way

Details are now available of the first pilotless jet aircraft to be test flown on Australia's rocket range. It takes off, manoeuvres and lands by radio control alone.

Bananas don't grow on trees. This statement contradicts appearances, but it is a fact. The banana plant is not a tree despite its size (from 15 to 30 feet) because there is no wood in it.

Three perch I brought from a mountain lake and put in a glass tank have thriven and become quite tame. They are fed on worms every few days, and if they show no signs of growing larger they are in good condition.

That authoritatively exclusive British journal, the Tailor and Cutter, has launched an editorial argument on the respective merits of nightshirts and pyjamas. It is a fight in which we do not propose to join, lest we conjure up for ourselves horrible nightmares in which outsized champions of the respective forces do battle for the right to share our slumbers.

Knitting is regarded on this continent as a feminine occupation. Other men, and perhaps women also, would look askance at any man who knitted, and complimentary observations would be passed. In some countries this is not so and there is nothing unusual in a man knitting. He is not accused of being effeminate.

The village of Acme in Alberta, 80 miles northeast of Calgary, was so named because it is on the highest point of a branch railway.

Atomic Research Progress

By Maurice Goldsmith, UNESCO Science Editor

Examine the head of a nail. It is trivial, insignificant. Yet within it lie the fundamental secrets scientists wish to unravel. For the nail, like all matter, is made up of atoms. There are more than a million million million atoms in a grain of fine table salt; and locked within each atom lie tremendous forces.

The atom in its construction can be compared to the solar system, with the sun as centre and the planets revolving around it. The atom's sun is the nucleus, and the planets are the electrons. A nucleus is made up of a dense pack of protons, which have a positive electric charge, and of neutrons, which have no charge. The positive charge is always counterbalanced by the electrons, which are always the same number of electrons as protons in the atom.

The atom is mostly space. The nucleus in an atom of iron is comparatively small as a pea placed in the centre of Piccadilly Circus in Times Square. The nucleus is only of the order of a millionth of a millionth of a centimetre in diameter — if it is possible for us to conceive this.

But the "space" is not dead. It is full of energy, of forces which keep the electrons moving at high speed around the nucleus, and which keep the components of the atom together. These nuclear forces are thousands of times stronger than, and different from, the force of gravity; their nature is still a fundamental problem in physics.

To split the atom and to realize the tremendous forces that are locked up in it, it is necessary to obtain a direct hit on the nucleus and to break the chains that bind the protons and neutrons. This was first done on a large scale in the atom bomb, when the uranium 235 atom was split.

When, later, the Curies, with great labour, produced an ounce of radium — the best-known radioactive element — it was clear that new theories were needed about the supposed unchangeable nature of the atom.

Physicists began to be looked upon like the alchemists of old who investigated the transmutation of matter (which is only another way of saying atom-smashing). Indeed, the next steps seemed to indicate that they had inherited the alchemists' mantle; for, they asked, why can't we change one element into a heavier one ourselves by attacking it with nuclear artillery?

The great British scientist Lord Rutherford, was the first to do this in 1919. He attacked nitrogen atoms with fast-moving alpha particles "thrown out by radium, and succeeded in changing a few of them into the nuclei of oxygen. Then began the development of great machines to provide "man-made" bullets with which to penetrate the nucleus. In 1932, at the Cavendish Laboratory in Cambridge, Sir John Cockcroft and Dr. E. T. S. Walton were responsible for the first transmutation of two elements by high electric tensions — and for this they have just won a Nobel Prize.

The atomic bullets necessary to cause nuclear changes must have speeds of the order of a hundred thousand miles a second. This can be done by the continuous accelerating action of electric or magnetic fields on the bullets' electric charges. Protons (ordinary hydrogen nuclei) have been used very largely for bombardment. Of increasing importance are deuterons (heavy hydrogen nuclei). Energies involved are measured in million electron volts (MEV), and to produce bullets with energies of even one MEV it is necessary to use a machine in which the particle can be accelerated to the high speed required.

Methods of accelerating particles are divided broadly into two classes: those in which the particles are accelerated along straight paths, and those in which a magnetic field is used to bend the particles during acceleration into spirals or circular orbits. Typical of the former are the old linear accelerators of 1,000,000- and 2,000,000-volt generators. These machines are reaching the end of their usefulness, because they cannot produce the very high voltages which are becoming common. An important recent development is an accelerator in which the energy is supplied by electric pulses.

The other form of apparatus includes machines with such names as: cyclotron, synchro-cyclotron, cyclotron, synchrotron. In the cyclotron, particles go round and round in a circle and at each revolution a few thousand volts are imparted to them. The final number of MEV will depend upon the number of revolutions. When the cyclotron was first suggested by the American scientist, Ernest Lawrence, only 20 years ago, learned articles were written to prove it could not work. The writers were less wise than the old lady who, visiting a laboratory, saw a cyclotron but could not understand how it worked. Suddenly, she explained: "I think I know what you do. You lead the atom around until it is so dizzy it breaks up in despair!"

Nature has herself provided a great atom-smashing tool in the cosmic ray particles. These cosmic rays shower upon us from outer space. They have a great penetrating power, mainly due to the particles' enormous energies, which they create in the upper atmosphere. These mesons are made when the high-energy particles collide with the nuclei of atoms. Mesons were first produced artificially at the University of California in 1948. The first artificial meson had an energy of about four MEV, but the mesons bombarding the earth have energies of billions of electron volts. And that is why the scientist will go on producing more powerful machines, such as the synchrotron, generating energies of 450 MEV, now being built in Chicago, which costs about \$3,000,000; and the proton-synchrotron, under construction in the University of California, estimated in 1948 to cost \$7,000,000. With this machine it is hoped to develop energies of 6,000 MEV using proton bullets, and 10,000 MEV with alpha particles.

It is to ensure that machines of this quality are available in Europe and to advance basic research in this field that 14 nations have just agreed, under the auspices of UNESCO to study during this coming year plans for these ends. Experts from the countries attending the conference agreed to the establishment of a planning centre at Geneva, which will study proposals for the building of two cyclotrons. The cost and benefits of these would be shared by countries which individually could not afford the expense. In the meantime, the planning centre may supervise research with laboratories and cyclotrons "loaned" by several nations.

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