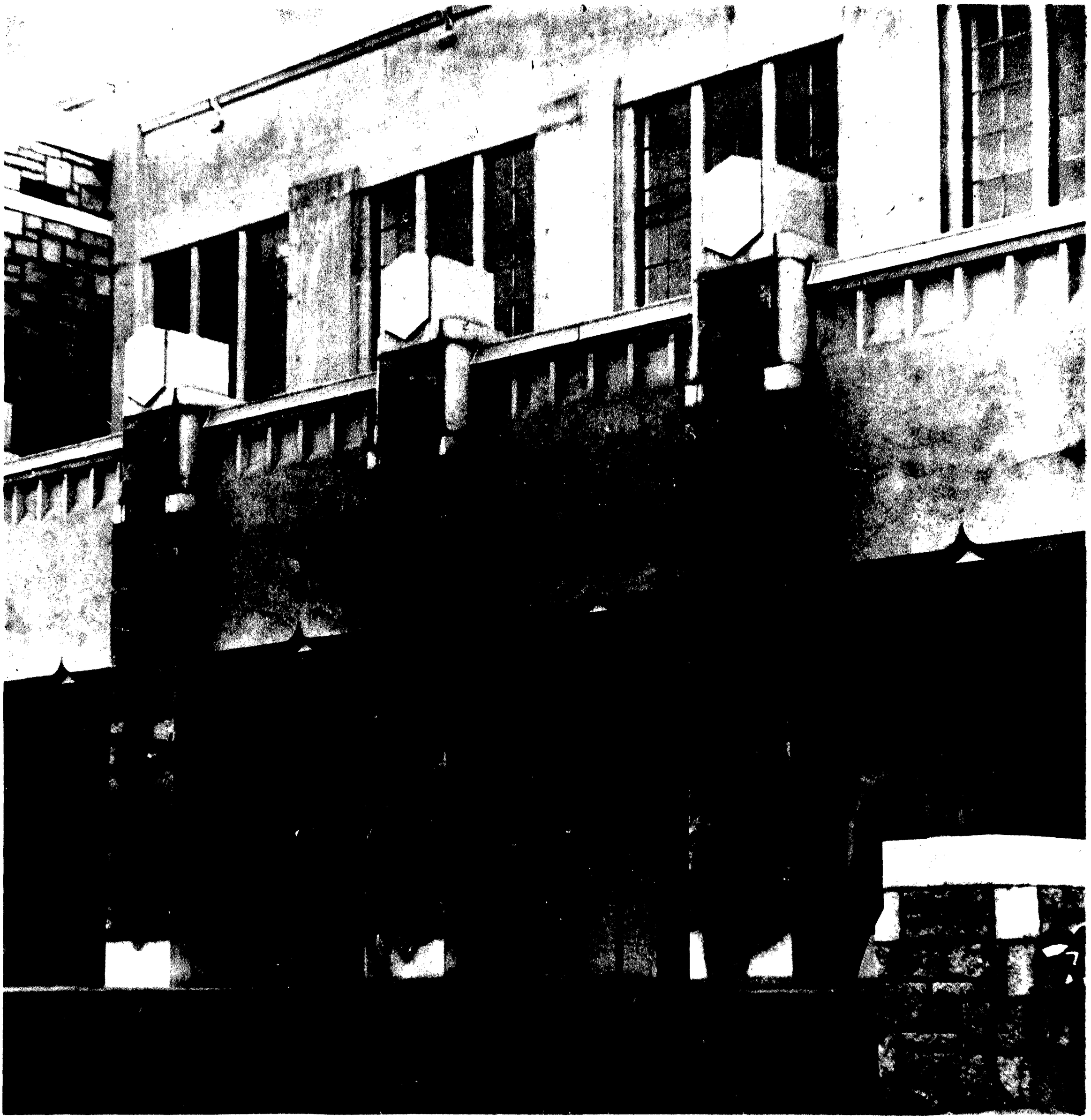
The Daily Ubyssey



Physics, the world's oldest science, leads British Columbia to the future from the newest addition to UBC's campus: . . . . the $750,000 Physics Building to which this issue of The Daily Ubyssey is dedicated.

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AND SO BEGINS AN AGE

Today we are standing on the threshold of an era . . . the era of atomic power. A hundred years ago a train of physical research came forward with steam-powered machinery. The result was expressed in the industrial revolution that followed. The changes wrought on society during that era are still being manifested.

Theoretical physics had set the pace for the development of the social structure of the world.

Today, a scant 100 years after the high point of the first industrial revolution, the world is facing an upset in industry that promises changes far more sweeping than any that could arise out of development of steam power.

Atomic power is now a reality.

On a hot summer day in the late summer of 1945 the first atomic bomb fell at Hiroshima, Japan, marking the beginning of the end of the second world war.

War had been revolutionized.

Now the world is looking to its research physicists to revolutionize industry.

UBC's physicists are ready for the challenge. Less than a month ago the provincial government presented to the University the keys to a three quarter million dollar building designed to house huge machines of physical research.

The department of Physics has assembled a crack team of physicists drawn from all over the world, from the European centers, from Berkley (where one of the world's largest cyclotrons is located), from Chalk River, and from Oak Ridge.

The Publications Board and the Editorial Board of The Daily Ubyssey join with the students of UBC and with the people of British Columbia in saluting the department of Physics.

The future is in their hands.

once over hardly

By HAL TENNANT

FOR SOME, EMBARRASSMENT

Up until this year, UBC students were at a definite disadvantage. They had no Physics building.

This fact was the source of no little embarrassment to numerous types who hurried off to lectures and labs in the Physics building when there simply **wasn't** one.

And people who were in the habit of looking out the south windows of the Library were disturbed by the fact that there was no other building to peek into and see things that were none of their business.

This situation brought forth a petition from those who frequented the upper floors of the Library.

Naturally, it asked that the proposed structure be something in good taste, and of great practical value, such as a one-story dorm for women with transparent skylights. (That is, the **building** was to have transparent skylights).

The University Senate met some months later to decide whether the space mentioned in the petition ought to be filled up with a building. They weren't any too keen about the whole thing, actually. They didn't have any old buildings lying around waiting to be used to fill up spaces.

The only solution, it seemed, was to build a new one. And it pretty well had to be a Physics building.

FOR ONE, A PATIENT WAIT

There was no sense trying to build any other kind, when the invitations to "The Opening of the New Physics Building" had already been sent out, John Hart was standing around with the keys in his hand, and the tea that was to be served afterwards was getting cold.

The Senate flew into action by postponing the matter for not longer than a year or two. By this time the tea was cold, and John Hart was leaning against a tree.

Consequently there was no necessity for them to appeal to the public to "Support the New Physics Building." It was self-supporting right from the start. With a solid concrete foundation.

Fortunately, a number of workmen who sympathized with Mr. Hart's position threw up a rectangle of scaffolding and built a building inside of it. They showed considerable foresight in their work, constructing the bottom story of the building first and working up to the top.

Their biggest problem was to decide what to put in the darn thing when they got it finished. Here too, though, foresight is now evident.

The energetic physics student may now dash into the basement any morning before breakfast and smash a few atoms as a pre-breakfast exercise since there are ample facilities for such scientific endeavor.

A large storeroom features a complete stock of brand-new atoms, which haven't even been scratched on the surface. The equipment provided ranges from the advanced physicist's twenty-pound hammer (factory guaranteed to play hell wth the most stubborn of atoms down to the beginner's set, consisting of a pair of toe plates and available to those who may want to kick a defenseless atom or two around, just to work out a grudge.

FOR OTHERS, A NEW LOOK

Ultramodern design is evident in the sliding panels between the rooms on the main floor. Students are thus assured of having ample wall space for all of them to be spattered against, should an explosion occur.

Ample window area, too, has already proved to be of invaluable value, particularly on the upper floors. From the second story people may now look over at people in the Library who are looking at people in the Physics building who are looking at people in the Library who may just be looking.

With such noteworthy contributions as this in evidence, it is clear that the University owes much to the Physics department. In fact if we had no Physics department at UBC:

1. Several professors would be on relief.

2. Several pages in the UBC calendar would be blank.

3. Students out here who are studying physics would feel silly.

4. The Physics building would be named something else, possibly the "Ex-lax building."

5. We would be over-run with atoms that should have been put in their places with a good, sound smashing.

6. I wouldn't have to sit here pounding out copy for the Physics building supplement when exams are less an a week away. And you wouldn't have to read it.

Modern Architecture Aids Study Of Physics At UBC

By LAURIE DYER

When officials of the Physics Department of UBC got together to design the Physics Building, they made sure that their new home was going to be as perfect as was humanly possible. Complete with all the new innovations that such a building could have, the Physics Building now stands ready to welcome the physicists of the future.

One of the main problems that the designers faced in trying to produce a smoothly functioning building was that of student traffic. The congestion seen in the Science Building resulting from hundreds of students going in and out of one door in a short five minute period between classes hod to be done away with.

The new building has one large entrance with ample door space and a spacious lobby in which students may wait. The main lecture room is immediately in front of the entrance and the next largest rooms are situated on either side. This allows the great majority of students to go directly in and out of the building without being forced to travel around the corridors.

The only other lecture rooms in the building are at the top of the stairs and at the front. The labs are also in front and traffic is thereby kept from the back of the building where the offices are situated.

The lecture rooms are the only ones in the University in which the students enter at the back, thus enabling latecomers to enter without disturbing the class.

Among the many innovations in the lecture rooms are the cloak rooms at the back. Since there are no doors between the class and the cloak room, it is harder for coats and other belongings to "disappear" while the student is attending a lecture. The cloak room also helps to keep noise from outside at a minimum.

All lecture rooms are air-conditioned and accoustically treated Corridors are also accoustically plastered whle the floors are linoleum covered. There are no windows in the lecture rooms, but incandescent and fluorescent lamps furnish a technicaliy perfect lighting system.

The main lecture room itself has many new features. The room is said to accommodate just as many students as Arts 100 but actually is nearly twice as large as the main Arts lecture room. At the back of the room, and of the two other main lecture rooms, a projection booth has been built in for visual education.

Blackboards in the main room are of ground black glass and are constructed so that they slide back to reveal a room behind for apparatus. This will permit experiments to be set up for later illustration while an earlier class is in session.

The ground plan of the building is arranged so that lecture and research rooms are on the inside in the form of a square while offices and labs are on the outside of the building.

In all, there are nine lecture rooms, fifteen undergraduate labs, and at least fifteen labs for research work by graduate students. Each spacious, well-lighted undergraduate lab accomodates 24 students, and provides considerable more comfort than the crowded rooms formerly used. The basement is almost entirely given to research labs.

Special rooms have also been constructed for certain apparatus in use by the department. One room, 29 feet high, has been built to accomodate the Van de Graff generator.

On the top floor of the building, a proposed library will contain periodicals and other pertinent material for the use of graduates and staff members.

Dr. G. M. Shrum, head of the Department of Physics, stated that although the building was constructed on a firm contract at a time when building materials have been increasing in cost, no inferior materials have been used.

Said Dr. Shrum, "both the architects and the contractors deserve a great deal of credit, not only for the quality of the materials used, but also for the splendid time they made and the excellence of the general workmanship."

HEADS PHYSICS DEPARTMENT.

DR. G. M. SHRUM

From the early days at Fairview until October this year, the Department of Physics has been handicapped by not having adequate space for teaching and research. Nevertheless, like many other departments in the University, it has earned an enviable reputation for thorough training and high scholarship.

With the opening of the magnificent new building, most of our accommodation problems have been solved, and it now behooves us not only to maintain our high teaching standards but also to contribute in a much larger measure towards the development of the science of Physics. I am confident that the young men who have recently joined the staff are prepared to make great personal sacrifices in time and energy in order to do this.

On behalf of the members of the teaching staff, I wish to express our sincere appreciation and deep gratitude to all those who have contributed in any way toward the building of this Physics laboratory. Particularly, we wish to thank President Norman McKenzie for his sympathetic understanding of our problems and for his stimulating leadership. We in the Department of Physics are pleased to have attained our objective. We shall be ever so much happier when all other departments in the University have at least comparable facilities.

G. M. SHRUM

UBC's Van de Graff Generator Housed In Impressive Building

By MICKEY FYNN

Contrary to common belief on the campus, it is not a cyclotron but a Van de Graff generator that is going to be erected in the "atom lab" of the new Physics building.

Dr. J. B. Warren, associate professor in charge of the installation of the generator, announced last week that work on the machine is to be started early in 1948, and if parts and materials arrive on schedule, it should be completed by the following Christmas, but nuclear physics experiments will not begin until three to six months after completion because of the time needed for testing.

"This may be taking a pessimistic outlook," said Dr. Warren, "but we don't want to make any rash promises just yet."

Cost of the machine, of which the full name is the Van de Graff pressure-insulated X-ray generator, will be in the vicinity of $50,000. The round main outer tank will measure about 24 feet in height and eight feet in diameter. This tank will be constructed of steel and be one to two inches in thickness.

WORKING PARTS

Inside the main tank are the working parts of the generator. A generator and rectifier feed electrical charges through gramophone needles onto a 40-foot endless belt that carries the charges to the top of the machine where another set of needles removes the charges, depositing them in the collector. The belt is driven at 100 feet per second by two ten horsepower motors.

When the charges in the collector reach the potential of 4,000,000 volts, it discharges,- sending gas protons down one of two vacuum tubes at a terrifically accelerated speed.

These two tubes are the same size, and both extend from the top of the generator down to the bottom, but the function o feach is entirely different from the other.

PROTONS SHOT

The tube that takes the main part in the work of the mochine contains an extremely high vacuum, and has an ionizer attached at the top. This ionizes the gas being used in the experiment into portons, and when the potential is reached, these protons are released into the tube, speed down the vacuum therein, and are shot into the target box at the bottom.

For the other tube there are two main uses It pumps excess gas from the first tube to keep up the vacuum, and also controls the voltage of the collector by a variable stream of electrons. This way, voltage variation is kept within 100 volts, and thus a more accurate test may be made. This is important as differences in voltage often cause differences in reactions.

Gas to be used in the main tube will usually be hydrogen, but duterium (heavy hydrogen), tritium, and helium may also be used.

In the target box is contained a target of any light element such as beryllium. A machine will record the reaction when the positive particles encounter the various materials.

HIGH PRESSURE

Pressure of the nitrogen gas in the outer tank will be 200 pounds per square inch. This compressed gas acts as an insulator, and without it the potential could not be reached.

A better gas than nitrogen, and much more expensive, is sulphur hexaflouride. This gas would allow up to fifty percent more voltage, but it must first be found if anything over 4,000,000 volts could be contained in the collector. The approximate cost of filling the tank with the gas would be $60,000.

In charge of the engineering, designing and drafting of the generator is Mr. T W. Mouat.

Wide Research Experience Marks Brilliant Career

Dr. Gordon Merritt Shrum, head of UBC's Department of Physics and one of Canada's leading physicists, earned his reputation through his researches into light and the effects of low temperatures.

A Silver Medalist in Mathematics, he received his Ph.D. from the University of Toronto in 1923 and was immediately appointed to its staff as research asssitant.

Following his researches into low temperatures, liquification of hydrogen, and helium, spectroscopy and light sources he was appointed to Corning Glass Works where he acted in the capacity of research physicist.

Coming to UBC in 1925, he was made assistant Professor in Physics. In 1937 he became director of the Department of Physics.

He is a fellow of the Royal Society of Canada, the American Physical Society, and the American Association for the Advancement of Science.

ENGINEERS LEARN IN LABS

FIRST YEAR engineering students Harvey Allan and Ray Godber watch intently while laboratory instructer Bruce Bewell points out the intricates of the flyball governor in the mechanics laboratory.

BOOK REVIEW

PHYSICS 100: FIRST TERM LAB MANUAL

MERVIN FUDNICK

PUBLISHED PRIVATELY BY THE AUTHOR

One of the most fascinating mysteries to appear this season is the long-awaited, "Physics 100: First Term Lab Manual." This is Mr. Fudnick's most recent bid to establish a closer understanding between himself and the hierarchy with which he has to contend. Written under duress, this volume nevertheless shows that the author has more than a slight knowledge of the fundamentals of physical sciences.

Particularly revealing is one pathetic appeal for tolerance, "Please excuse the pencil. I ran out of ink at two am Sunday morning."

FIRST WORK

Unfortunately, as is the case with most first works of the younger generation the enthusiasium exhibited in the earlier pages appears to be somewhat dampened towards the final chapters.

This deterioration late in the book in no way detracts from the vigorous beginnings. The rhythmic cadences take on a near hypnotic quality which cannot but remind one of that superb piece of cadence writing, Vaschell Lindsay's, "Congo."

The illustration by the author display a rare feeling for significant form although one wishes that Mr. Fudnick would use a compas when drawing circles.

His treatment of Fletcher's Trolley displays a conscious knowledge of the architectonic inter-relation of planes Here indeed is a pervading rhythm that is unique in its economy of line although it is to be regretted that the author chose the medium of woodcut rather than steel engraving.

It is generally known that Mr. Fudnick perfers to do most of his sketches on a west-bound Universtiy bus.

ERUDITION OBSCURED

It is to be regretted, though mildly, that the authors aesthetic sensibility tends to obscure his scientific erudition. Futile is his plea against the intellectual stranglehold exerted by science in what he claims is its false position as a comprehensive account of life.

". . . . I don't see the point of this experiment . . . . " is Fudnick's bewildered cry.

The inclusion of a chapter on the reproductive system of a frog seems hardly appropriate in a discussion of physics. Perhaps this is an oversight on the part of the author. Certainly, its only purpose is to indicate the variety of his interests.

It will probably be the unfortunate fate of this book—such is the nature of this kind of thing—that will never penetrate to that part of the public that needs it most—but the attempt is an excellent one. We cannot but look forward eagerly to the appearance of his next volume.

Here is what the leading critics of the continent are saying:

Chicago Sun: incredible in its insight.

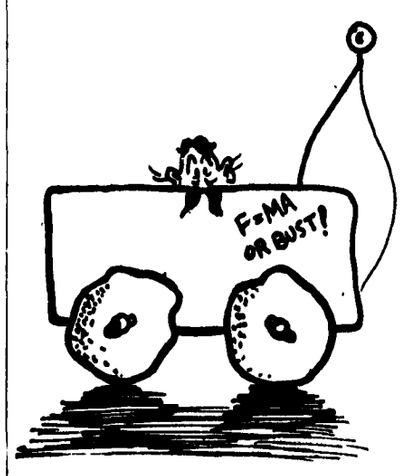
Herald Tribune: brilliant analysis; a parallel to Virginia Woolf.

New Republic: Deep social significance although lacking in character development.

Time: Will leave its mark.

Zippy Stories: Sexy.

Point Grey News Gazette: Wanted one set of last year's Physics 100 notes. Apply Mervin Fudnick.



FLETCHER SURVEYS HI-TROLLEY

From Old Woodcut)

World Famous Scientists Work In UBC Physics Dept.

More than twenty world experts in the field of theoretic and experimental physics have been assembled at UBC to form the nucleus of a research and tutorial staff designed to lead the way in molecular research in Canada.

Under the direction of Dr. Gordon Merritt Shrum, head of the department of Physics at UBC, the picked crew of crack physicists include experts from all parts of the world—from United States to Europe.

LOCAL BOY SHINES

The story of Dr. George Michael Volkoff is one of "local boy makes good."

When Dr. Volkoff took his B.A. at UBC in 1934, he was dissatisfied with his results in English 100 (then English 1). This was the only course in which his grade fell below 95 percent. He got 91 percent.

CALIFORNIA CALLS

Born in Russia in 1914, he came to Canada as a child. After attending school in Vancouver, he entered UBC to take his B.A. and his M.A. in physics here.

The youthful genius then travelled to California where he took his Ph. D. at Bereley, the home of one ofthe first U.S. cyclotrons.

He completed his work at Berkeley under a Royal Society of Canada Research Fellowship and later went to Princeton.

STARRY

Since his graduation the lanky tousel-haired researcher has left a trail of triumphs in research centres throughout the continent. His record suns something like this:

Reasearch under Professor J. R. Oppenheimer, Physics Dept., University of California, Berkeley.

Reasearch under Professor E. P. Wigner, Physics Dept., Princeton University.

Appointed Assistant Professor in Physics, University of British Columbia, 1940.

Instructor in Physics and Radio—Radio Mechanics Course (U.T.), R.C.A.F. at University of British Columbia, 1941.

National Research Council, Research physicist, 1943.

National Research Council, Association Research Physicisst, Grade II, Montreal Lab., Feb. '43—Oct. '44.

National Research Council, Research Physicist, Oct. '44 — May, 1945 — Oct. 1946 — Head of Theoretical Physics Branch Division of Atomic Energy, National Research Council, Montreal and Chalk River.

Appointed Professor of Physics, University of British Columbia, 1946.

Dr. Volkoff spurns laboratory methods and believes that the true approach to physics lies through mathematics. "This is all the scientific equipment I need," he said indicating a stack of scrambled sheets of paper covered closely written equations.

MACKENZIE ACCLAIMED

A second graduate of UBC who has won nation fame in atomic research and is now professing at his home campus is Dr. Kenneth Ross MacKenzie.

Dr. MacKenzie established an outstanding scholastic record here during his undergraduate years. He received his M.A. in 1937, and his Ph D. in physics at the University of California in 1940.

ATOM SMASHER EXPERT

Dr. MacKenzie has done extensive work with the cyclotron — the mechanical behemoth which unlocked the secrets to atomic fision leading to the perfection of the atomic bomb He is now doing research work under the heading "R. F. System for Frequency Modulated cyclotron".

Dr. MacKenzie has been a member of the American Physical Society since 1940.

MAKES LIGHT OF LIGHT

Dr. A. M. Crooker, tall loosely-jointed family man, is the pride o fthe optics department.

The first man into the Zeiss optical works in Germany following the liberation of that section of territory toward the close of the second World War, Dr. Crooker was at that time a major with the Canadian Army in charge of inspection of captured enemy equipment.

LENGTHY HISTORY

His lengthy lists of appointments reads like a chapter from the proceedings of the Royal Society:

Chemist, Dunlop Tire & Rubber co. 1928.

Demonstrator in Chemistry, McMaster University, 1929.

Research Assistant to J. C. McLennan, University of Toronto, 1930.

Bursar, National Research Council of Canada, 1932.

Student, National Research Council of Canada 1933.

Fellow, National Research Council of Canada 1934.

Seasonal employment with Dominion Department of Entomology, 1930-1934.

1851 Exhibition Research Scholar, 1935-37, at King's College, University of London, with Sir Owen Richardson.

Demonstrator in Physics, King's College, University of London, 1936.

Lecturer in Physics, University of British Columbia, 1937.

Assistant Professor, University of British Columbia, 1938-1941.

Chief Physicist in charge of Optical Design, Research Enterprises Ltd. 1941-1945.

Major, Canadian Army, C. I O. S. investigator of captured enemy equipment, 1945.

Associate Professor, University of British Columbia, 1945-

Dr. Kenneth C. Mann, short dapper expert of the Beta-tron, hails from eastern Canada. Afjter taking his junior degrees at the University of Saskatchewan he finished his Ph. D. at the University of Toronto. z

MANY TALENTS

Dr. Mann, has since become known to second year Physics students as the man who can make Thermodynamics (Physics 200) easy.

Dr. Mann ,who now holds an asso-

(Continued on Page 8)

BETA-RAY SPECTROMETERS AID RESEARCH

By MICKEY FYNN

Although virtually unknown to students of the University of B.C., the beta-ray spectrometers, instruments designed to analyze the radiation emitted by radioactive nuclei, are two of the very important machines installed in the recently opened Physics building. Following information was given by Dr. K. C. Mann of the Physics department in an interview earlier this week

The nuclei given off by the spectrometer are produced from radioactive atoms whose chief characteristic is an unstable core or nucleus which tends to break down by the emission of a beta particle, leaving the residual nucleus to form an atom of another atom can from a nitgrogen atom if it gives off an electron, or technically, a negative beta particle.

Sometimes a very penetrating gamma ray is also emitted with the beta participle. Gamma rays are like x-rays, but usually are more penetrating than the commonly used x-radiation.

For theoretical physicists to formulate a theory of nuclear structure, a knowledge of the energy distribution of both the beta particles and the gamma rays given off by radioactive isotopes is very necessary. Such a theory, if successful, must predict these energy distributions and if they are unknown, no adequate tests of a theory can be made.

HOLDS IMPORTANT PLACE

Also, a thorough experimental study of this phenomenon could conceivably give valuable hints to the theoretician whose theory must, at least in the beginning, be largely guesswork. Therefore, the beta ray spectrometer, whose function it is to make such studies, holds an important place in the field of nuclear physics, since to a certain extent no other single instrument will tell so much about the method of decay of radioactive nuclei.

Before the energy of the beta-rays can be measured, they must first be detected. This is done in the instrument with a geiger-counter, a small metal cylinder with a high voltage central wire, the cylinder being filled with a mixture of argon gas and alcohol vapor at low pressure. At one end of the counter is a very thin mica "window" to allow the beta-rays to enter.

Sinces these rays are easily stopped with a few sheets of paper, this window must be very thin. If a single beta particle enters the cylinder, it ionizes the gas inside and the negatively charged ions are at once drawn towards the central wire, creating a small momentary current or "pulse".

This can be amplified with a radio circuit and used to turn on a light, or operate a mechanical device which acts as a counter. This method is used in the beta-ray spectrometer to detect the beta particles emited during radio-active disintegration.

MAGNETIC SEPARATOR

Since beta partioles of many energies, or speeds, are emitted by a radioactive source, the device which analyzes them must of necessity in some way be able to separate beta particles of one speed from those of another. This spectrometer does this magnetically. A magnet held near the path of the beam of charged particles will cause the particles to fan out, the ones of less speed being drawn farther from the original path than those particles of more speed.

This method is that of magnetic analysis, and calculations can be made to show the relationship between the amount of deflection and the speed or energy of the particles. If one factor is known, the other can be calculated.

The main body of the beta-ray spectrometer consists of a long brass tube, eight inches in diameter and about 36 inches long. The radioactive source is concentrated in a very small area and is placed inside the tube at one end. The geiger-countr for detecting the particles is placed at the oppoisite end of the tube. Between these two are large baffles made of lead with openings in them to allow the radiation from the source to reach the counter.

A large electromagnet surrounds the centre of the tube, and as the current through this can be varied, the magnetic field can be varied. At any one field strength, the deflection of the beta particles is such that these particles which leave the source to get through the first baffles and follow a spiral path through the other baffles to the counter.

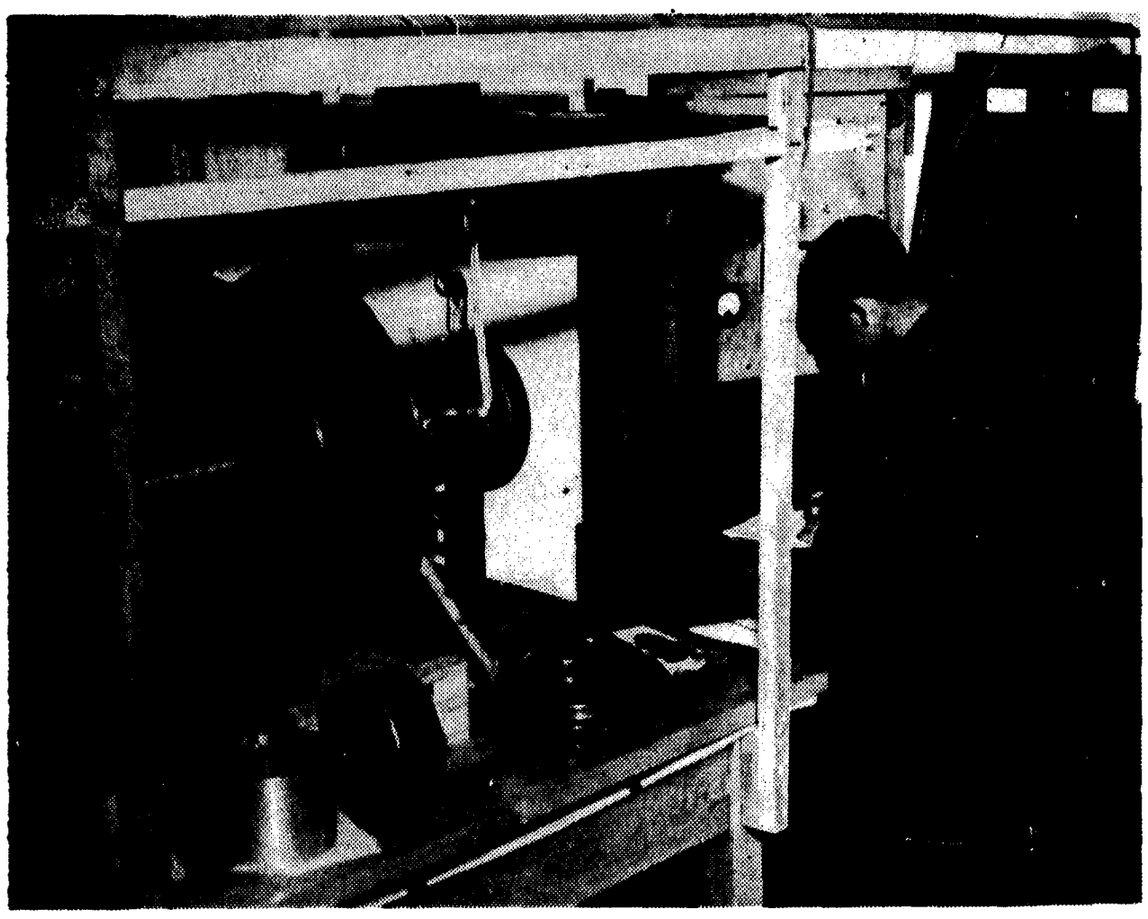
HIT BAFFLES

Also at any one field strength, only beta particles of one speed can get through. All others have the wrong deflection and strike the baffles instead of passing through the openings. Those that do get through are said to be focussed on the counter window in a manner exactly equivalent to the focussing of light by a lens in optical system. Such magnetic lenses are used in the well-known electron microscope.

If the magnetic field is adjusted to a different value, a different electron energy is focussed. In this way, the distribution of beta-particle energies from any source can be analyzed.

To measure the energies of the gamma rays, which are not deflected by a magnetic field, a different technique must be employed. The arrangement is the same as for the beta rays but in front of the source a thin layer of

(Continued on page 7)



GRADUATE STUDENT Peter Lindenfeld takes a reading from the control panel of the Beta-ray spectrometer. Designed to analyze radiations emitted by radio-active nuclei the instrument is an important part of UBC's atomic research equipment.

Fine Artsmen Plan UBC Culture Centre

Plans for the eventual establishment of a cultural centre and a study of the means to establish a new Faculty at the University of British Columbia will be set in motion by members of a university Committee on Fine Arts.

At a recent meeting, the committee agreed unanimously on its terms of reference, which included the extension and encouragement of cultural activities on the campus, plans for the eventual establishment of Fine Arts Centre, and promotion of public interest in cultural and fine arts activities at the University.

The group will act as clearing-house for cultural matters on the campus in the meantime, and will work towards the establishment of a Faculty of Fine Arts.

A central executive committee and eight sub-committees were set up by the group, under the general chairmanship of Prof. Frederic Lasserre. Sub-committees were set up for Music, Visual Arts, Theatre, Literature and Public Speaking, Handicrafts, Cinema, Dance and Radio.

President N. A. M. MacKenzie and his executive assistant, Prof. G. C. Andrew, will sit as ex-officio members of all committees, the group decided.

OPENING CEREMONY

HON. ERIC HAMBER (left), Chancellor of the University of British Columbia, is shown receiving the keys to the Physics building from Premier John Hart at the opening ceremonies held Wednesday, October 29, in the main auditorium of the new structure. The opening of the building for "the finest physics department in Canada" was hailed as "a great moment in the history of UBC."

Alum Dance Set For Boxing Day

Annual feature party of the Alumni Association of the University of British Columbia, a Boxing Day dance will be held at the Commodore Cabaret in Vancouver from 9 p.m. to 1:30 a.m. December 26.

The graduates plan a floor-show which includes a chorus line and specialty dancers. Master of ceremonies will be radio commentator Dorwin Baird.

Invited to be Patrons for the affair are His Honor, Lieutenant-Governor Charles A. Banks and Mrs. Banks; Chancellor and Mrs. E. W. Hamber; President and Mrs. N.A.M. MacKenzie; and Mr. and Mrs. Jack Grant, Seattle, both memebrs of the student campaign 25 years ago to build the University on its Point Grey site.

A 25th Anniversary motif will be observed throughout, say members of the committee convened under chairman Molly Bardsley. Members of the committee include: Marjorie Agnew, Barbara Kelsberg, Cart Collard, Bob Morris and Wilf Calnan. Tickets for the event can be obtained now from Alumni Secretary Frank Turner in the Society's office at UBC's Brock Hall, or from Mr. Collard at the Commodore daily from 12 to 1 p.m. starting December 19.

SPECTOMETER

Continued From Page 6

metal such as lead is placed. In passing through the lead, the gamma rays knock electrons from the lead atoms.

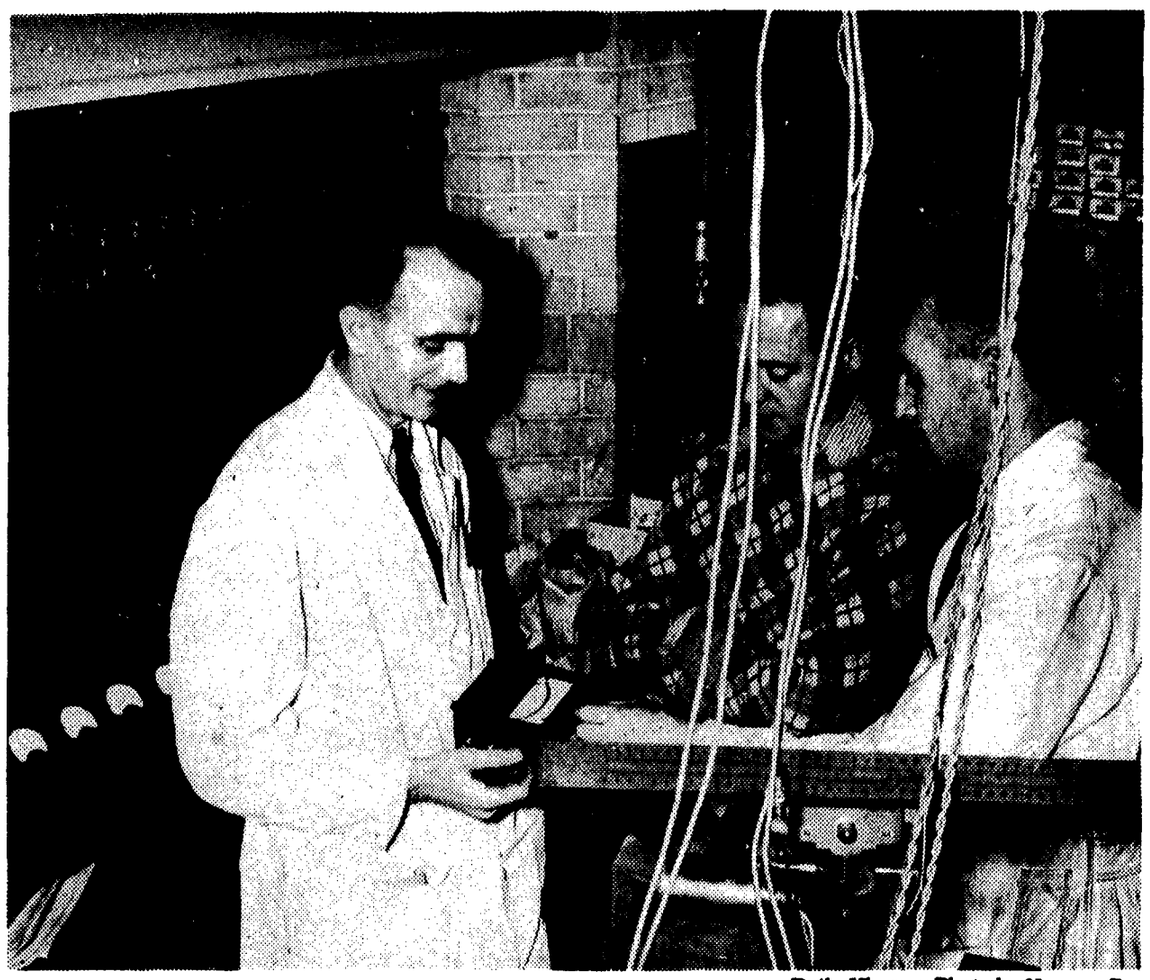
These electrons pass through the baffle system as described before, and are analyzed. The more energy the original gamma ray had, the faster is the ejected electron, so that by measuring the latter, a mearurement may be made of the energy of the former.

FLEXIBLE

The beta-ray spectrometer is very flexible in the use to which it may be put, and already the complete energy spectrum of one element has been taken. Plans are under way for analyses of artifically induced radioactive sources to be obtained from Chalk River, Ontario. It is hoped by the Physics department that when the Van de Graff generator is complete, radioactive sources from that machine will be available for analysis.

At present, five active workers are engaged in work on beta-ray spectroscopy. They are Mr. M. J. Ozeroff, Mr. H. Brown, Mr. P. Lundenfeld, Mr. P. N. Daykin, and Mr. R. K. Brown. Their work consists not only of analyses of the above-mentioned nature, but also of work with auxiliary electronic equipment such as amplifiers, regulators, scaling circuits, coincidence circuits, etc., which form an integral part of present day nuclear research.

STAFF REPAIRS INSTRUMENTS



—Daily Ubyssey Photo by Norman Ross

CONSTANTLY WORKING behind the scenes to keep the Physics department's equipment in top-notch shape is the staff of the instrument repair and machine shop. Here Earl Price and Alex Fraser discuss a galvanometer with a fourth-year student.

U of S Installs New Type Betatron

Saskatoon, Sask., Dec. 11—(CUP)—Excavations have begun for a 22 million-volt-electron betatron to be installed at the University of Saskatchewan.

The machine, the first of its kind to be installed in a Canadian institution, is a newly developed device for giving electrons extremely high energies. This high energy electron beam is directed at a target and the subsequent bombardment produces a high energy X-ray beam.

Last year Saskatchewan's Department of Physics approached the Canadian Atomic Energy Control Commission for funds to be used for the purchase and installation of a betatron During the summer it was announced that the commission had approved an initial appropriation of $30,000.

Officials expect the betatron to arrive in the spring hence work on the building which will house it will continue throughout the winter. Dane T. Scag, Allis-Chalmers' betatron expert, will personally supervise the installation. The first betatron was installed by this company under the direction of its inventor Dr. D. W. Kerst at the University of Illinois.

The machine will be under the supervision of the university's physics department, but it is expected that the Chemistry, Biology and other departments will find it useful for research.

Of Men And Atoms

By VAL SEARS

My guide was an affable young man, a typical physicist, indistinguishable except for his glowing eyes which seemed to say he was just one step from discovering the Fundamental Equation.

He led me down into what, judging from the results, could only be the bowels of the Physics Building, through a lead-covered door and into a tremendous room bulging with softly pulsating machinery.

Two physicists (I knew they were scientists because they were going pocketa, pocketa, pocketa) were standing before a bubbling device labled "Atom Smasher."

ATOM SMASHERS

First Physicist: "It's my turn now!"

Second Physicist: "Like hell it is, you've had two turns in a row!"

First P.: "O.K., O.K., don't get mad."

(Second P. reaches into a lead-sheathed box labled "Atoms" and rummages around)

Second P.: "I'm looking for a green one they make the prettiest colors."

(Finally picks out a small green softly glowing marble and places it in a slot in the base of the machine, slowly pulls a lever back and lets go. He then surreptitiously places his shoulder under a corner of the machine and raises one end. Suddenly there is a loud clanging sound and a sign lights up reading "TILT." First P. jumps up and down shouting "Cheat, cheat!"

First P. then reaches into box, extracts an atom, places it in machine and pulls lever. There is a resounding "pppft" followed by a rattling sound. First P. much excited, reaches into a box attached to machine and pulls out handfuls of electrons.)

First P.: "I hit the jackpot, I hit the jackpot, wait until Berkeley hears about this!"

At this point my guide dragged me away to resume our tour.

VISITING FIREMAN

On our way to the Van de Graff generator I stumbled over a thin leg protruding from a mass of machinery. Grabbing hold of the ankle I pulled. A small, bearded gentleman holding a notebook and pencil in his hand slid across the floor. He was snarling and gibbering in some strange language.

"Oh my goodness" my guide shouted "put him back. He's a Russian scientist here on tour."

I hurriedly stuffed him back into the machinery.

Further on we came across a chap sitting on the edge of a chair staring fixedly at a wheel going round and round. Noticing my questioning glance my guide said offhandedly "He's an observer from Oak Ridge, adds class to the place."

Finally we arrived at the imposing array of belts and pulleys known as the Van de Graff Generator.

"What's it do?" I asked.

BIG QUESTION

"What's it do?" my guide echoed. "What's it do? Does it have to do something? Don't be so damn practical.

"But what goes on inside?" I queried.

"Oh it's so complicated." You would never understand." he said flapping his hand at me. "The electricity in there keeps bouncing around faster and faster until it gets so excited it just flies off, knocking atoms all over the place. We don't waste them though, he confided, Mr. Va de Graff picks them all up."

Just then I noticed a little man creeping up on me a Geiger counter clicking in his hand. I glanced down my hand was glowing. I ran from the lab. God, this lead suit is uncomfortable.

FAMOUS SCIENTISTS

(Continued from Page 5)

ciate professorship, worked with the navy group of the radio branch of the National Research Council from 1941 to 1945. His efforts were directed toward the design and development of a compact radar set to meet specifications of the British Admiralty.

RADAR USED HERE

Upon completion, the set was enthusiastically received by the authorities and was put into immediate use in the British wartime coastal fleet. The same set is now being used extensively by B.C. Coast shipping. Based on the principal of electronic screen projection, it will reproduce surrounding objects ranging from driftwood to mountains.

Previous to joining the research council, Dr. Mann lectured here in Physics from 1938 to 1941 when he held an assistant professorship. He is a charter member of Kappa Sigma fraternity.

PEDIGRREED PHYSICIST

A few of Dr. Mann's outstanding appointments are listed below:

Held the Sir J. C. McLennan Research Fellowship in Physics, 1936-1937.

Held the University of Toronto War Memorial Research Fellowship 1937-1938.

Conducted geophysical surveys under the direction of Professor Gil--chrest—University of Toronto in the summers of 1937 and 1938.

Lecturer in Physics—University of British Columbia, 1938-1939.

Assistant Professor of Physics—Uni-Versity of British Columbia,, 193911941.

On leave of absence to the National Research Council, Radio Branch, as research physicist on radar problems for the Allied services, 1941- 1945.

Sent to England on radar project for British Admiralty, May-August, 1943.

On loan to Research Enterprises Ltd., Leaside, Ontario. crown company manufacturing special radar equipment. Was design and production engineer for Admiralty radar, 1943-1944.

Appointed representative of the British Admiralty Technical Mission at R. E. L. in advisory capacity while continuing duty as production engineer, 1944-1945.

Returned to Department of Physics in September, 1945, as Associate Professor of Physics at University of British Columbia.

EXPERTS IMPORTED

The Physics department has ventured across the Atlantic for several members of the staff.

Dr. Otto Bluh, oval-faced, genial physicist from Moravska, Ostrava Czechoslovakia, is probably the most prolific author on the physics staff.

He has to his credit more than thirty publications including two books and several reviews.

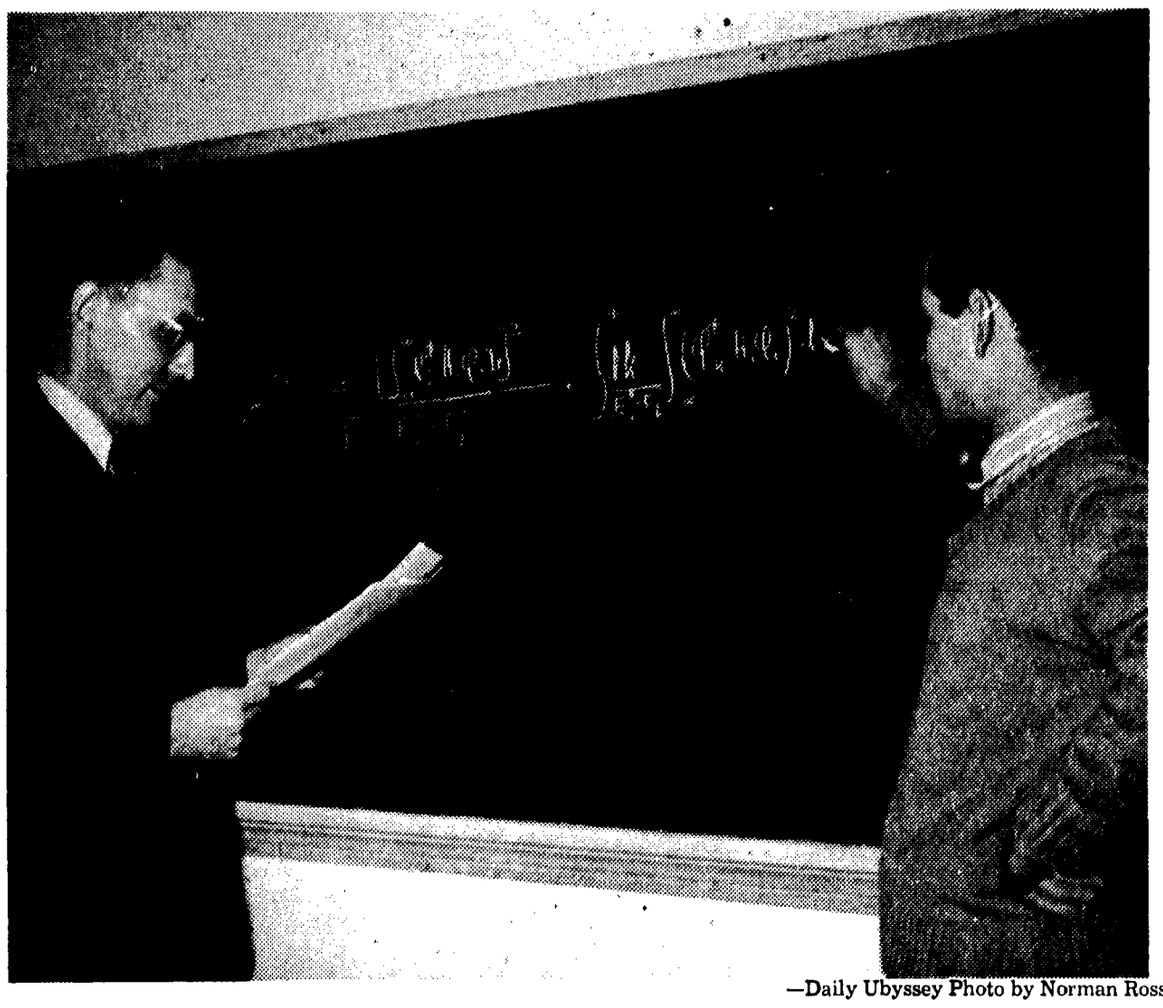
WORLD TRAVELER

Dr. Bluh took his degrees at the University of Prague, Czechoslovakia, and in Vienna, Austria. He later did extensive post-graduate work in Berlin and in Biringham, England.

He had lectured in many schools and universities in England and on the continent before coming to UBC in 1946.

Another European scientist appointed to the department of Physics at UBC is Dr. F. J. Belinfante, Lecturer in Theoretical Physics at the University of Leiden, Holland. Dr. Belinfante is generally considered as one of the leading younger scientists in his particular field.

THEORETICAL PHYSICISTS AT WORK



—Daily Ubyssey Photo by Norman Ross

DR. G. M. VOLKOFF discusses an advanced problem with David Carter, post graduate student in theoretical physics. Unique in the fact that the only "laboratory" equipment used is a blackboard, theoretical physics is becoming increasingly important.

Girl Lab Instructors Show Women's Place In Physics

By PAT HENDERSON

Physicists can be beautiful.

Skeptical physics students have ample proof in the six comely physics graduates who are now instructing in the junior years.

Although bagpipes and light-plane flying may not be essential to physics Lorna Silver and Betty Booth think they help.

COMBINE WORK AND STUDY

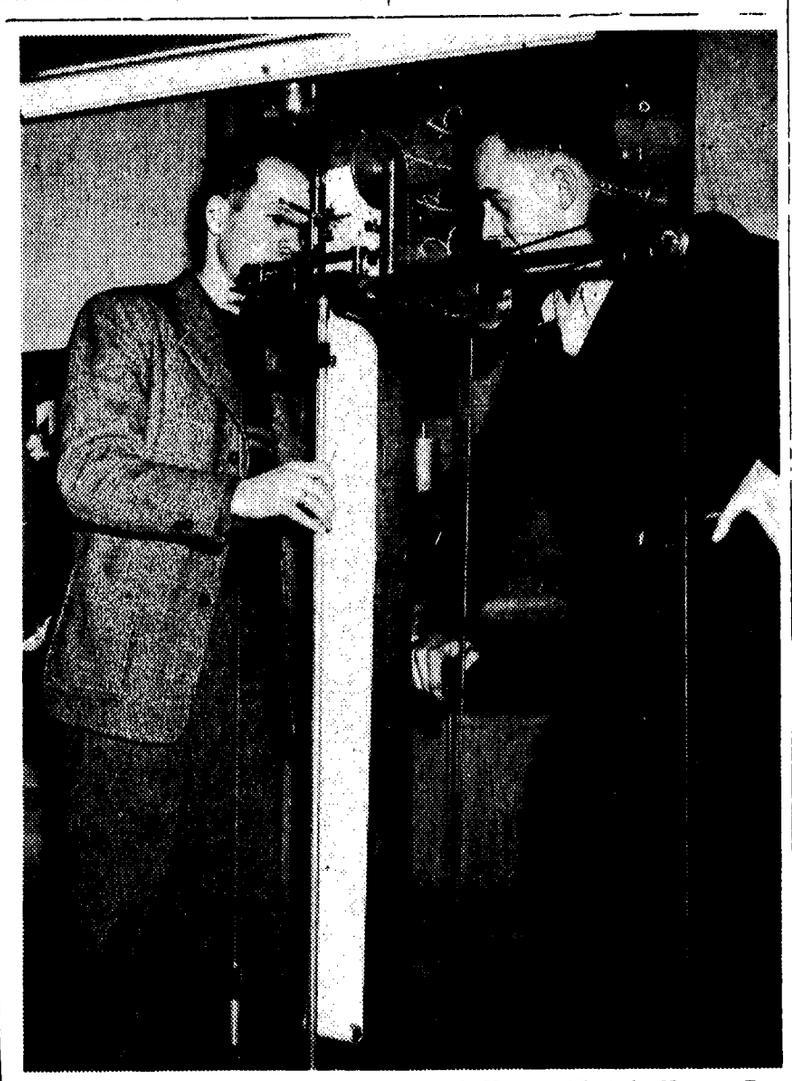
They are two of the six girls now proceeding to their M.A.'s in Physics at UBC while instructing in the modern laboratories in the New Physics Building.

Blowden Thomas, Helen Urquart, Mercedes Fairfax, and Eleanor Mayo make up the comely contingent.

BRIGHT FUTURES

Denying that the women's place is in the home, these youthful physicienes paln to go to Ph. D. degrees and eventually to make their mark in the world's history of science progress.

Miss Thomas is presently conducting research in micro-wave spectroscopy. Miss Silver studying methods of measurement of charged particles.



—Daily Ubyssey Photo by Norman Ross

TWO THIRD YEAR physics students study the results of a test run on the wave analysis machine in the optics laboratory. The results will be interpreted in terms of light rays and will aid in the understanding of the principles of optics.

Ice Hockey Team Invades South

UBC's thundering Thunderbird ice hockey squad takes off for the south Sunday for its first inter-sectional competition since the sport was revived on the campus two years ago.

Coaches Frank Fredrickson and Paul Thompson will take their charges to the San Francisco area for a pair of exhibition contests against University of California in Berkeley on December 16 and the Olympic Club in the City of the Golden Gate on December 17.

A POST-GRADUATE Physics student is shown working on one of the many intricate research projects in the new Physics building. Operated by the panel under the student's hand, the apparatus is used in experiments on the thermal conductivity of rubber.

Thunderbird Hoopsters Open Conference Saturday

Following a smart pre-season showing against three collegiate cage squads, namely Central Washington College, University of Oregon, and Seattle College, Coach Bob Osborne's Thunderbird basketball crew is currently taking a well-earned two-week rest prior to commencing competition for the 1948 Northwest Conference Championship.

The Blue and Gold hoop quintet opens its conference season with a single game on their home campus court Saturday, December 20, when they will play host to the Pacific University Badgers from Forest Grove, Oregon.

Coach Osborne is particularly pleased with the performance of his two newcomers, Bill Bell and Reid Mitchell, during the opening non-conference campaign. These two new Thunderbirds show promise of fitting in well with the 10 hold-overs from last season's play, and as a result, big things are expected from the UBC Varsity outfit this season.

Although the Thunderbirds dropped a pair to the Oregon Webfoots, the scores of 62-33 and 65-51 would indicate they'll be able to hold their own against the second rate college clubs of the Northwest Conference, especially since the Ducks are rated as one of the top, if not the best team on the Pacific Coast this season.

BEAT SEATLE

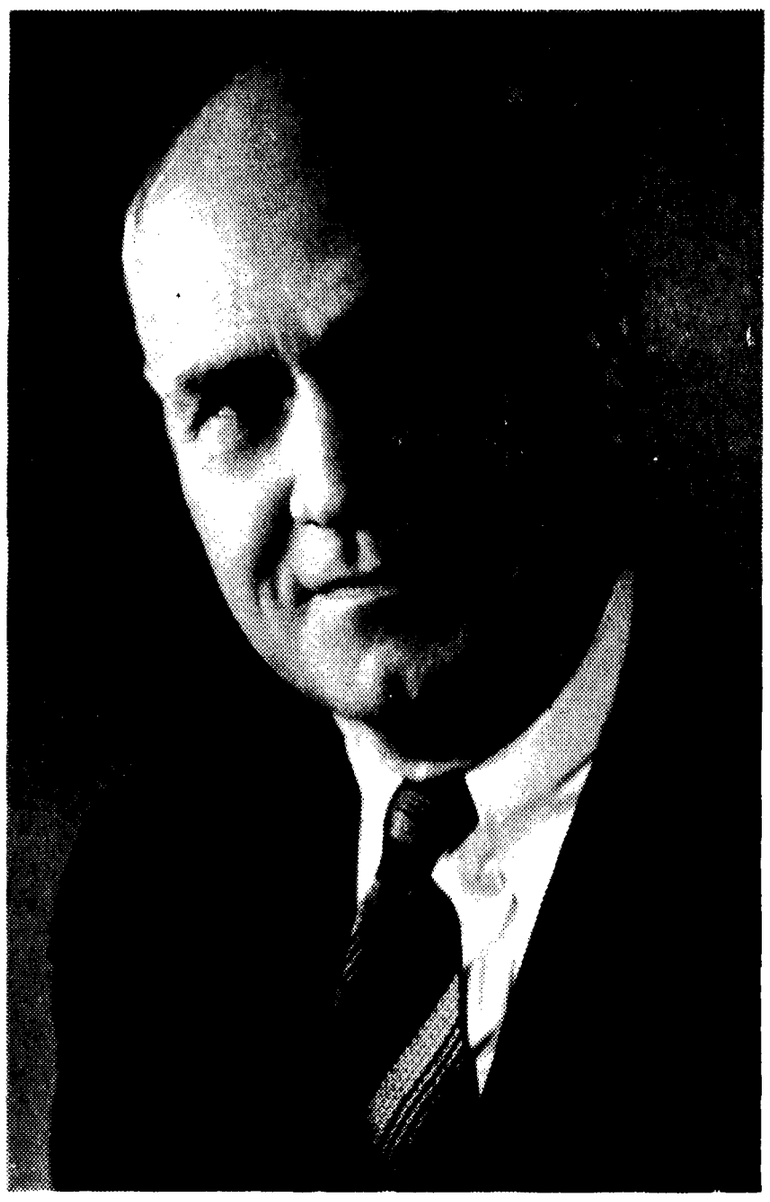
The 'Birds went out to give further proof of their ability last weekend, snatching a pair of victories over Seattle College's Chieftains at the new maple courts in Seattle. The scores were 59-58 and 40-28.

Now that their pre-season schedule is all but completed, the Thunderbirds are getting set for a concentrated season which will see them competing for two important crowns. The first, of course, is the Northwest Conference title which they won in the first year of conference play two seasons ago. Last season they had to be content with a tie for the runner-up spot.

In addition, this year the Thunderbirds will vie for representation of Canada at the 1948 Olympic Games in London. With these two goals as their prime objectives, the UBC quintet plan an all-out drive for a winning campaign.

Because of the bang-up season which is in evidence ,and taking advantage of the additional feature where all seven of the oher conference teams will be playing UBC on the Point Grey maple courts this season, the UBC athletic officials are making a new offer to basketball fans.

Luke Moyls, graduate manager of athletics, announced that season tickets for basketball will go on sale next week.



HON. G. M. WEIR
Minister of Education

The Department of Education of the Province of British Columbia is directly concerned with the organization and administration of the schools of the Province, and with the curriculum taught in these schools. The Department also offers educational, cultural and recreational facilities to adults.

1. The Division of Recreational and Physical Education, under the direction of Ernest Lee, 736 Granville Street, Vancouver, operates many centres throughout the Province for leisure-time and recreational activities.

2. The Division of Technical Education, under the direction of H. A. Jones, conducts vocational classes under Dominion-Provincial Agreements:

- **(a) Classes for unemployed young persons within the age group 16 to 30.**
- **(b) Classes for young people residing in rural areas in order to train them for agricultural work and for life on farms.**
- **(c) Bursaries and loans for students attending universities, medical and dental colleges, Normal Schools, Schools of Nursing, and public Technical, Vocational, and Art Schools.**
- **(d) Supervicory training for personnel of industrial firms.**
- **(e) Vocational and pre-matriculation training for discharged members of the Armed Forces who are recommended for training by the Department of Veterans' Affairs.**
- **(f) Classes for indentured apprentices.**
- **(g) Vancouver School of Navigation.**

3. Two Provincial Normal Schools, one in Vancouver and one in Victoria, train persons who wish to qualify as teachers.

4. The Summer School of Education, operating in both Vancouver and Victoria, provides in-service training for teachers.

5. The Division of Educational and Vocational Guidance is responsible for educational and vocational planning for students of high school age, and works in close co-operation with the National Employment Services, with business, and with industry.

6. The Division of Visual Education, a recently organized branch of the Department of Education, provides on loan to schools education films, film-strips and slides.

7. School radio broadcasts, arranged in co-operation with the Canadian Broadcasting Corporation, are heard daily by school children, the programmes dealing with such topics as Social Studies, Literature and Language, Science, Health, Music, Art, Canadian Affairs, news reviews, student forums, vocational guidance and community life.

8. The Division of School and Community Drama concerns itself with the promotion of school and cmmunity drama throughout the Province; it sponsors drama festivals and concerts, and generally stimulates interest in this cultural, leisure-time activity.

9. Correspondence courses are offered in a wide range of elementary and high school subjects to students living remote from schools, and to adults desiring elementary or high school education.

10. The Provincial Library in Victoria, comprising some 250,000 volumes, provides a reference service to any one in the Province.

11. The Public Library Commission, through its Open Shelf Division, offers free library service to any one without access to a local public library. Travelling libraries are sent out to rural and isolated communities. Institutional libraries are provided for Provincial Government institutions. The services of the Teachers Professional Library are available to all teachers in the Province.

12. The Provincial Museum of Natural History and Anthropology and the Provincial Archives come under the direct jurisdiction of the department of Education.

13. The School for the Deaf and Blind situated in Vancouver is available for children suffering from partial or complete loss of hearing or vision.

DEPARTMENT OF EDUCATION

VICTORIA, B. C.

HON. G. M. WEIR
Minister