



THE MANITOBA PROFESSIONAL ENGINEER

October, 1963

Bulletin of the Association of Professional Engineers of the Province of Manitoba

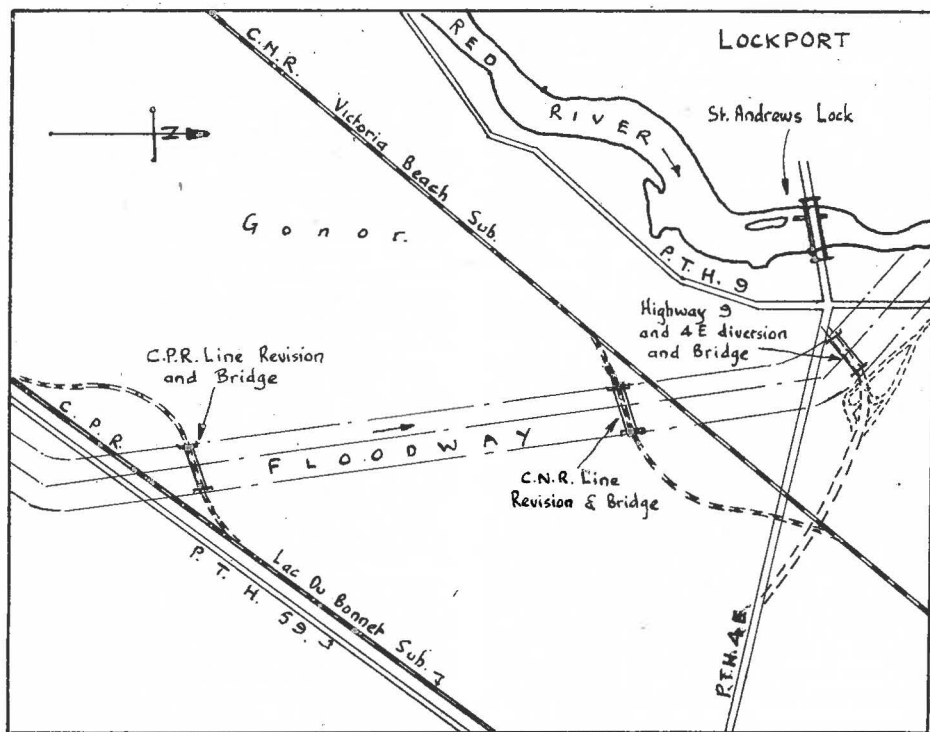


Fig 1

SEE FLOODWAY STORY — PAGE 6

SPECIAL MEETING

October 16th, 1963 - 8.15 p.m.

MANITOBA HYDRO, 650 HARROW STREET (Taylor Avenue Entrance)

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Vol. 6

WINNIPEG, MANITOBA, OCTOBER, 1963

No. 3

Winnipeg International Airport Air Terminal

By T. G. H. MCKIBBIN, P. Eng.

So you are planning to fly from Winnipeg to the Caribbean for your Christmas vacation? Then you will be agreeably surprised and pleased when passing through the new Winnipeg Air Terminal; all you will require in modern travel comfort will be yours... a far cry from the older facilities used for years and set up in a Trans-Canada Airlines hangar on the edge of Stevenson Field during the 1930's.

Before looking at the new Air Terminal, let us quickly review the history of Stevenson Field which was first established in the 1920's. The original runway was simply a grassed strip, sufficient for the airplanes of those days. In 1937, as heavier airplanes began to operate in and out of Winnipeg, the original landing strip was replaced by an asphalt runway and at the start of World War II the North-West/South-East Runway was strengthened and lengthened to 3,000 feet. In 1947 the North-West/South-East and North/South Runways were rebuilt and in 1948 were lengthened to 6,200 feet. With the most recent renovations and additions, made necessary by the advent of the pure-jet long-range airplanes operating in and out of Winnipeg the North/South Runway now extends 11,500 feet, the East/West Runway extends 7,000 feet and the North-

West/South-East Runway extends 8,700 feet, a far cry indeed from the pre-war runway of 3,000 feet. The three runways at Stevenson Field are laid out in the now-familiar triangle pattern and have connecting taxi-ways which also incorporate high-speed turns so that an airplane may quickly proceed either to or from runway or terminal buildings. The three runways now consist of 11" thick concrete slabs founded on compacted gravel three feet thick. Underdrainage of the runways is carried away to two creeks adjoining Stevenson Field; it is understood that the runways as presently installed are expected to be strong enough to cater to any airplanes likely to use them in the foreseeable future. The Department of Transport, which has control over all civilian airfields in Canada has prudently acquired 3,005 acres of land comprising Stevenson Field, thus allowing future development of the existing runways and ground installations.

Accompanying the various extensions to the runways and taxi-strips over the years, terminal facilities had been expanding but at a much slower pace. From accommodation in the Trans-Canada Airlines hangar a number of extensions were made, mostly during the period 1945-

ANNUAL GENERAL MEETING

Thursday, November 28th, 1963 - Fort Garry Hotel

Guest Speaker: Prof. George Ford, Head, Department
of Mechanical Engineering, University of Alberta.

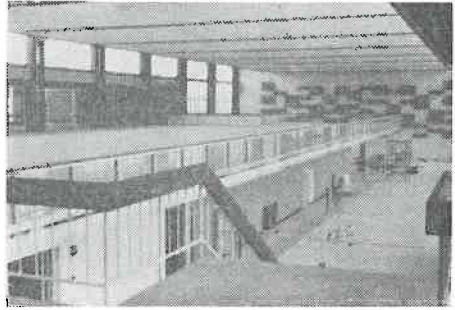
Topic: Engineering Education.

1962. In 1952 an extension was made to house the International Room and the Customs Branch, while the last extension in 1962 enclosed the reservation counter for North West Airlines.

A recent visit to the new Air Terminal showed that the passenger terminal, including the public car parks and airplane standing areas would probably be ready for use by early October. It is also fully expected that air traffic control would pass from the old control tower beside the T.C.A. hangars to the new control tower atop the new administration and operations building on Monday, September 9th, 1963.

The approach to the new Air Terminal is by Wellington Avenue which terminates at its western extreme in Stevenson Field in the approaches to the new Air Terminal parking lots. A traveller going into the terminal complex, going west on Wellington Avenue will see first on his left the power house. This building measures approximately 120'x120' in plan and houses the main heating plant to the main terminal buildings. The power house also encloses the emergency generator system driven by diesel engines which is started up automatically by a drop in voltage, a drop in voltage frequency or a complete power failure. The emergency power equipment is sufficient to provide electricity for all communications equipment, emergency lighting and other essential requirements. Services between the power house and the terminal buildings are located in a tunnel which is approximately 12'0" x 10'0" in cross-section and which passes under the car-park located between the administration building and the power house. The power house was built by Drake Construction Company Ltd. of Winnipeg.

Proceeding past the power house to the main group of the Air Terminal buildings, the visitor will find a parking lot for those who wish to park their cars for relatively long periods of time. This parking lot lies between the power house and the administration building. Passing on farther is found the administration building on the left with the control tower rising from the centre of the building to a height of almost 150 feet above ground level. The administration building is flanked on the north and south sides by metered parking lots for short-term car parking. All told the three car parks can handle approximately 730 cars. The passenger terminal, which consists of two main sections lies immediately to the west of the administration and operations building separated by a double lane roadway. All-weather access between the passenger terminal and administration building is provided by a glassed-in covered walkway at the second-floor level so that motor vehicle flow on the roadway is largely unimpeded. The architects and engineers for the Air Terminal were Green



Part of main reception hall and passenger concourse.

Blankstein Russell and Associates of Winnipeg, acting in consultation with the Department of Transport Engineering Department. General Contractors for the administration building and the passenger terminal were Commonwealth Construction Company Limited of Winnipeg. Construction on the new Air Terminal started in the late summer of 1960.

The administration building occupies an area 200'x175' in plan and is two stories high, with the second storey projecting out over the main floor so as to provide a covered walkway all around the building. Rising from the centre of the administration building is the seven-storey operations centre which is surmounted by the control cab. Construction of the building is of structural steel, fireproofed, and lavish use in concealment of columns has been made of smooth finished Tyndall Stone. Facades also are of Tyndall Stone. On the main floor one will find a fully equipped bank, complete with strong room and complete employee facilities such as rest lounges, wash rooms and a kitchenette. A telephone exchange is also located on the main floor where the telephonists may be viewed through a large window of armour-plated glass. Access to the second floor is either by two stairways or an escalator. Here are located the airport manager's offices, Canadian National and Canadian Pacific Telegraph sending and receiving facilities, the meteorological offices, including the pilots' briefing room and the main communications center, to name but a few. The main impression gained by the visitor is that of airiness and light, no doubt contributed by the excellent working space, lighting and modern interior decoration, which, although simple and uncomplicated conveys an impression of cheerfulness. Access to the control cab, atop the administration and operations building is effected either by stairs or an elevator which operates between the basement and seventh floor. Emerging from the elevator in the seventh floor a few steps lead to a spiral wrought-iron staircase which comes up in one corner of the control cab. Here all four walls



Administration building and control tower.

are of tinted armoured glass sloping inwardly from top to bottom to minimize the effects of rain or snow. Below the windows are located all the radio and other communications equipment, including radar, required for handling air traffic. A verandah, well railed-in, surrounds the control cab. Of course, every point on the airfield is visible from the cab and an incoming plane can be observed right up until it rolls to a stop nosed-in to the passenger terminal. Ultimately, traffic controllers will have not only long range and short range radar for keeping track of airplanes, but will have ground radar which would indicate, for example a car or truck, stalled in a runway, which might otherwise not be noticed, particularly at night or during foggy conditions.

The first two or three floors under the control cab now house all the radio and radar equipment required for the present operation of flights while there will remain another two floors available for the installation of future equipment. All the radio equipment is capable of being "self-tested".

Of particular note in the administration and operations building are the number of floor ducts which are easily uncovered. This will permit easy relocation or addition of cabling as required with little disruption to every-day business. On each floor a connection between the floor ducts and a large vertical duct, running the entire height of the building, is available, so that new equipment may be wired into any floor level as required without further ado.

Staff facilities are noteworthy; each unit or group is equipped with washroom and kitchenette facilities. Where female employees are likely to be working in a group, a rest lounge is provided.

Extensive use is made of fluorescent lighting and the entire administration building is air-conditioned and heated from a heating and air-conditioning plant in the basement. The exterior of the building is clad in Tyndall Stone with indoor columns also finished in Tyndall Stone. All doors on the main and second floor which would be used by the public are of 1/2" armoured glass.

Access to the passenger terminal from the

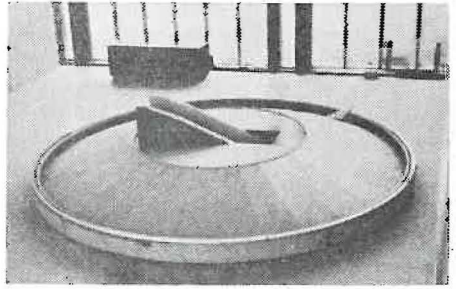
public roadway between it and the administration building is by way of five entrances which incorporate a separate vestibule in each entrance to keep in the warmth in winter and help keep the heat out in summer. For passengers impeded with baggage, the doors will open as soon as pressure sensitive mats in front of the doors are stepped on. Each entrance has an "In" and "Out" passage so that a smooth flow of passenger traffic into and out of the building is maintained. To protect passengers from rain and snow the sidewalk running along the front of the terminal is covered by a roof which not only projects over the roadway but also extends over each entrance. Every few yards loudspeakers are suspended from the underside of the roof so that passengers outside the terminal may hear announcements.

Passing into the terminal, whose entire frontage facing the administration building is composed of glass, will be found the main reception hall. At each end of the hall are two "carousels" for baggage pick-up, while along the back wall are located the "check-in" counters of the various air-lines serving Winnipeg. Here a passenger is checked in, his baggage weighed and passed, after tagging, through a hatch in the wall onto a conveyor which will carry his baggage to the basement of the terminal where it is loaded onto a truck which will load the baggage on to his airplane. Also in the reception hall are located several banks of public telephones, booths for various car rental firms and similar conveniences. The main passenger concourse is just upstairs from the reception hall and may be reached by escalators and stairs at each end of the concourse or by a central stairway whose landing on the concourse level is located at the terminal end of the covered walk from the administration building. The concourse will be amply furnished so that passengers may relax while waiting their turn for departure. A newsstand will be located at the top of the main central stairway. At the north end of the terminal building there will be a large wall mosaic; the whole ceiling of the concourse is composed of fluorescent light panels which house 7,640 fluorescent tubes. The area occupied by the passenger concourse is 28,000 square feet. On the airfield side of the concourse are located amongst other facilities a barber shop, a post office and a ladies' beauty salon. Down a corridor leading to the airfield side of the building is found the main dining room which also incorporates at its south end a cocktail bar. A good view of the airfield can be seen through large windows. On the roof of the restaurant is the observation deck which is reached by a stairway leading from the passenger concourse. Both the observation deck and main restaurant will be open to the public. On each side of the restaurant block and

at the same level are three "holding lounges" which will be used by passengers awaiting immediate embarkation by airplane. The lounges will be furnished so that a plane load of people may be comfortably accommodated; each lounge has its own separate washrooms. Stairs lead from each lounge to the airfield through loading gates of which there are six. A special V.I.P. lounge is located near the south end of the waiting area. This lounge is equipped with a small kitchenette, washroom, bedroom and a conference room. To have as much daylight in the section of the building connecting the waiting lounges and the main concourse, two light wells have been built. Each one forms a small courtyard with fountains and works of art. Each light well has a gallery so that the fountains may be observed close at hand — this, it is feared will be only a summer-time activity. Below the main restaurant is the main kitchen where all cooking is done both for the main restaurant and the quick-service coffee shop. All the latest equipment has been installed in the kitchen and it is capable of producing comprehensive menus.

Passengers arriving on an international flight will leave their plane and proceed to the basement of the terminal building for processing. The passengers will pass through a health department check first of all. The health unit comprises, amongst other items, a two-bed hospital, laboratory, X-ray room, film processing laboratory and of course, washrooms and a kitchenette. After passing through the health department check point, passengers will be passed to the immigration department where passports and visas will be examined. Passing upstairs passengers will find themselves in a lobby containing two baggage "carousels" and benches for customs examination. Passengers will only have to stand at the edge of a carousel and wait until their baggage comes around to them and then it is just a short lift to the customs benches. Having passed the customs benches passengers will find the main reception hall only a few steps away through armoured glass doors. Two international flights may be handled simultaneously with a smooth flow of passengers.

Baggage handling is noteworthy. As mentioned earlier, baggage on an outgoing flight is passed from the main reception hall by conveyor belts to a part of the terminal building basement. Here the baggage is loaded onto a truck which travels up an inclined ramp and out to the parking apron and loaded onto a plane. Incoming baggage is taken from a plane to the basement and loaded onto the appropriate conveyor belt which travels under the floor of the main reception hall emerging in the center of a "carousel", where it slides onto the "carousel" and travels around until picked up by a passenger. International baggage is handled in much the same fashion except that



One of six carousels in the passenger terminal.

incoming baggage is routed to the "carousels" in the customs hall.

Air freight is also handled in the terminal basement where there are loading and storage facilities. A "one-way-street" runs through the basement for trucks loading or unloading air freight. Two tunnel ramps lead to the basement, these ramps emerging to ground level on the north and south sides of the air terminal. Truck and car movements around the terminal complex are, in the main, one-way; so it is expected that smooth flow should result.

Like the administration building the passenger terminal makes extensive use of "Tyndall" stone for exterior and interior walls and pillars. Facilities for passengers are excellent and include such items as a children's nursery which will be in charge of a nurse; the nursery also has its junior size washroom! There is also a special washroom for wheelchair invalids with specially fitted equipment. Staff facilities have not been forgotten in the terminal building — numerous kitchenettes, washrooms and restrooms are found. Everywhere, one will be able to hear announcements for there are loudspeakers everywhere and while no announcements are being made, continuous quiet music will be heard. The whole terminal is air-conditioned just as is the administration building.

The whole impression of a tour of the air terminal is of intense planning having been done; for instance, who would think that the garbage from the kitchens will be frozen while waiting to be picked up? The Winnipeg Air Terminal is something that Winnipeg can certainly be proud of and it is certain that the air traveller will enjoy his stay whether brief or long at the terminal. The Department of Transport and their consulting engineers and architects, Green Blankstein Russell and Associates are to be congratulated on a magnificent job both of planning and construction.

My thanks for help in this short article are due to Mr. L. Millidge, Regional Construction Engineer of the Department of Transport, Mr. Mr. H. R. Kaatz, Architectural Engineer of the Department of Transport and Mr. C. Gay of the Department of Transport.

BRIDGE CONSTRUCTION ON THE RED RIVER FLOODWAY

By I. W. THOMAS, P. Eng.

SYNOPSIS:

The commencement of construction of the Floodway required amongst the first projects, the building of a highway bridge, and two railway bridges at the North end of the Floodway near Lockport. A general description is given of some features of design and construction of these bridges. Location of the bridges is indicated in Fig. 1.

SOIL CONDITIONS:

At Lockport, in the vicinity of the bridge sites, 6" to 12" of organic clayey silt topsoil overlies 20 to 25 feet of light brown silty clay. Below the clay there is 25 to 30 feet of light brown glacial till, overlying the limestone bedrock. The elevation of the top of sound bedrock varies in this area from Geodetic Elevation 701 to 721, with a variation on individual

sites up to 10 feet. Test borings indicated some water seepage in interspersed seams in the glacial till and on top of the limestone.

At all three bridge sites, spread footings were used for the main channel substructure units. With the ground at approximately Elevation 758, the bottom of floodway grade at about Elevation 727, these units were generally founded on the glacial till at about Elevation 720. At all sites, shallow substructure units on piles were used at the ends of the bridges.

FLOODWAY CROSS SECTION:

The floodway channel at Lockport, with a design discharge of 60,000 CFS, $S=0.00016$ consists of a 380' wide base with 6:1 side slopes, average depth 27'. A secondary channel on the centre line of Floodway, 3.6' deep x 52' maximum width, is intended to provide for normal dry weather flow. A transition is

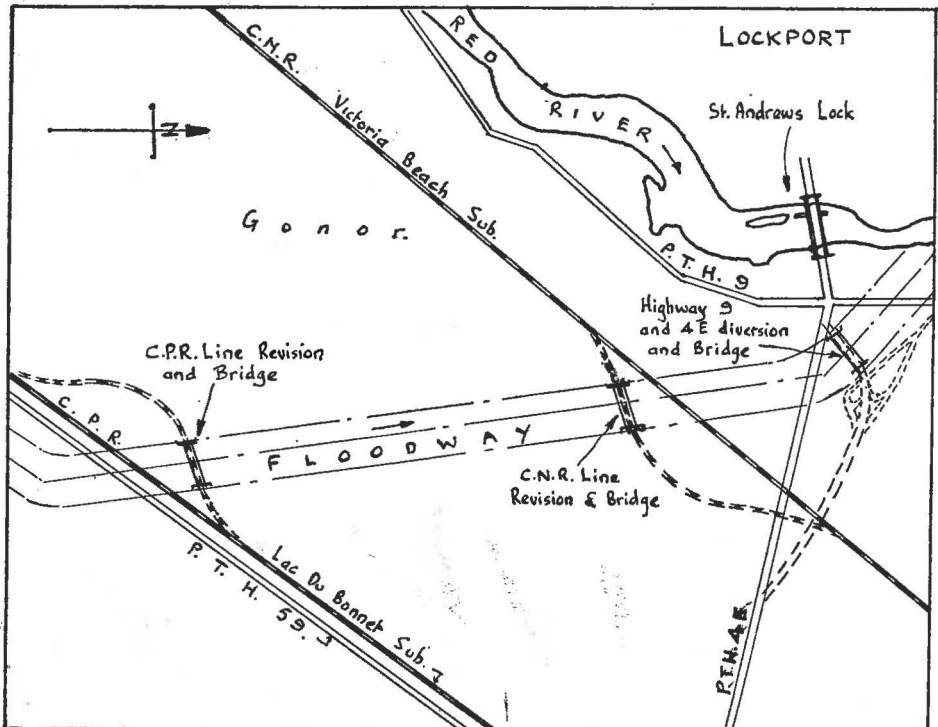


Fig 1

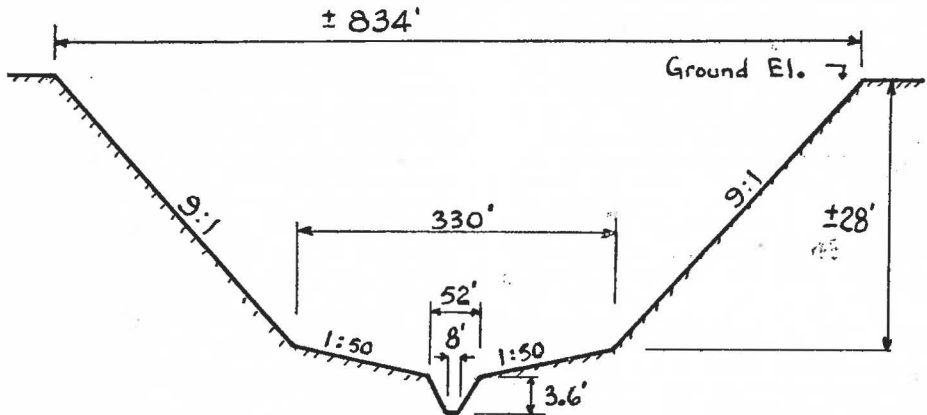


Fig. 2. Floodway Section at Bridge Sites.

introduced at the bridge sites to give a channel section with a 330 foot wide base, and 9:1 side slopes as shown in Fig. 2.

HIGHWAY BRIDGE, P.T.H. 4E:

The Floodway channel, as shown in Fig. 1, crosses the existing P.T.H. 4E at an angle of approximately 70° and then crosses the existing extension of P.T.H. 9 at an angle of 47°. It was decided to relocate these two roads and build a single square crossing in the location shown.

Alternate designs were prepared for welded steel girders with composite concrete deck and for prestressed concrete girders with concrete deck. The prestressed concrete alternative proved more economical and was adopted.

The structure consists of 9 precast prestressed concrete I beam spans, with a 7" R.C. composite slab, providing a 30 foot clear roadway. Length of the bridge between backwalls is 807'-4". Substructure units #4 to #7 have spread footings on the glacial till, all other units are supported on steel H piles driven to the limestone.

General details and layout are indicated in Fig. 3

The two end spans consist of 87'-6" prestressed I beam units, each 54" deep with 21" wide flange and containing 38-1/2" H.T. strands. The intermediate spans have 90'-0" prestressed I beam units, 58" deep with 21" flange width and containing 42-1/2" H.T. strands. 5000 p.s.i. concrete was used for the I beam units, and 3750 p.s.i. concrete for the 7" poured in place deck slab.

The bridge was designed to A.A.S.H.O. Specifications, using H20-S16-44 live loading.

The structure was designed and construction supervised by the Bridge Engineer's Office,

Highways Branch, D.P.W. Manitoba. Poole Construction Co. were general contractors with construction and erection of prestressed members by Preco Ltd.

C.N.R. BRIDGE, VICTORIA BEACH SUBDIVISION:

As can be seen from sketch #1, the Floodway crosses the C.N.R. Victoria Beach Subdivision at an angle of almost 45°. Economic studies indicated that the cost of a skew bridge over 1200 ft. long plus a temporary railway line diversion for bridge construction considerably exceeded the cost of a permanent rail-

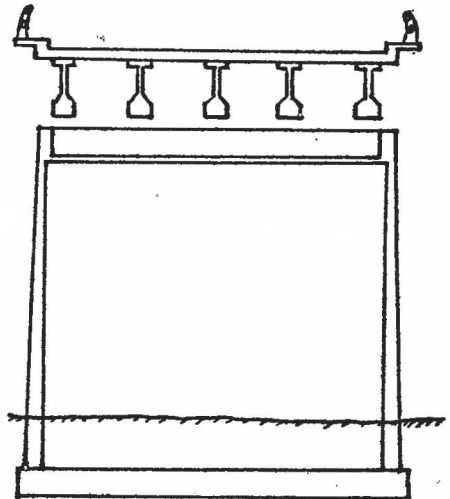


Fig. 3. P.T.H. 4E Bridge

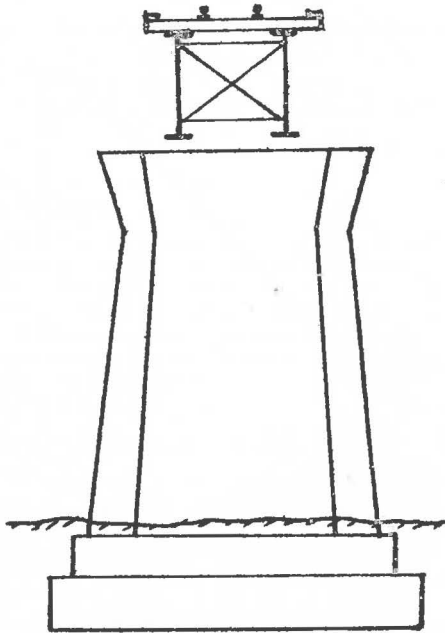
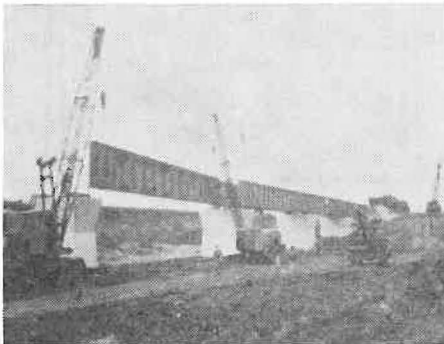


Fig. 4. C.N.R. Bridge

way line revision plus a near-square bridge crossing, 800 ft. long. It was therefore decided that a railway line revision be built with the alignment of the bridge and floodway set at an 80° angle.

This bridge consists of 9—78' rivetted deck plate girder spans, with a 40' steel beam approach span at each end, overall length 801 feet. The steel spans are built square, and the piers which are in line with the Floodway have flared copings to accommodate the skew of the bearing line. The concrete abutments are supported on steel H piles, and all the other piers are founded on spread footings on the glacial till.



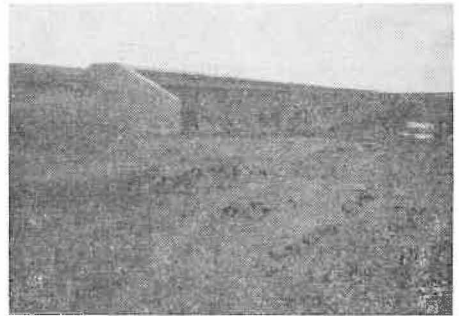
General details and layout are indicated in Fig. 4 and Photo B.

Design live loading for this bridge was Coopers E60 with diesel impact factors. Design specifications were CSA-S1 for superstructure and AREA-8 for substructure. Steel No. G 40.4 was used throughout, with all connections rivetted. For the deck, creosoted douglas fir ties were used.

The structure was designed and construction supervised by the Bridge Engineer's Department of the C.N.R. Prairie Region. Bird Construction Ltd. were the substructure contractors and Bridge and Tank Western were the superstructure contractors.

C.P.R. BRIDGE, LAC DU BONNET SUBDIVISION:

This structure consists of eleven 71'—0" welded skew deck plate girder spans, with composite concrete deck carrying railway ballast, overall length between abutment bearings being 796'-0". The concrete abutments are supported by precast concrete piles, and all piers are founded on spread footings on the glacial till.



General details and layout are indicated in Fig. 5 and Photo C.

The main girders were shop welded and utilized G 40.8B steel for the flanges and G 40.8A steel for other girder material. G 40.4 steel was used for bracing members which were connected by high strength bolts. Submerged arc welding was used for flanges to webs of the girders and low hydrogen electrodes for other welding. Stud type shear connectors were used for the concrete deck to steel girder connections. All splice welds were checked by radiograph.

Design loading was Coopers E60 with diesel impact factors. Design specifications were AREA and A.W.S.

The structure was designed and construction supervised for the C.P.R. by Haddin Davis & Brown, Consulting Engineers, Winnipeg. Commonwealth Construction Co. were General Contractors, the welded steel girders being

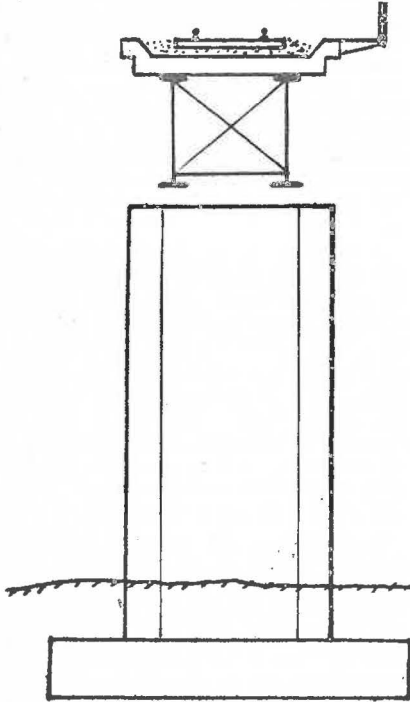


Fig 5. C. P. R. Bridge.

supplied and erected by Bridge & Tank West-ern, Winnipeg.

CONSTRUCTION NOTES:

For the P.T.H. 4E bridge and the C.N.R. bridge separate contracts were let before bridge construction started, for preliminary excavation of the bridge sites and approach embankment construction. For the C.P.R. bridge, these items were included in the general contract for the bridge.

Preliminary excavation was made to an elevation 10 feet above final elevation of bottom of floodway, and was taken out to the Floodway cross section and for a length of about 500 feet at the bottom, providing adequate working area for the contractors. This was completed before freeze up in 1962 and the approach embankments were completed in the summer of 1963. The excavation for the bridge piers was made in most cases with practically vertically sided pits for the 15 to 20 foot deep holes required. This was possible due to the fairly dense material and very deep frost conditions, due probably to the preliminary excavation having removed all organic material from the top of the clay, and lack of snow cover.

Water seepage gave little trouble at the C.P.R. site, was more extensive at the Highway bridge site, and was troublesome at the C.N.R. site, where 2 - 4" pumps were required to dewater some pier excavations.

Transit mixed concrete was used for all jobs. It was generally possible to place concrete in the forms with a temperature between 60 - 70°F, in spite of the 20 mile run from Winnipeg in temperatures as low as -25°F. It was however occasionally necessary to avoid concrete pouring on days with a high wind chill index.

ACKNOWLEDGMENT:

All work in connection with these bridges was performed under the administration of the Water Control and Conservation Branch, Department of Agriculture and Conservation, Province of Manitoba; J. A. Griffiths, P. Eng. Director; T. E. Weber, P. Eng. Chief Engineer; A. G. Mensforth, P. Eng. Chief, Floodway Division, whose co-operation in making available details of these works is gratefully acknowledged.



FORMER EDITOR ENGAGED

J. C. "Chris" Gillespie who went to Greece to drum up business for his company, drummed up a fiancée for himself in the process. Congratulations, Chris.



On March 30 the Engineers' wives entertained their husbands at the Second Annual Smorgasbord and Dance. The theme of this year's event at the Charleswood Motor Hotel was "MARDI GRAS" and a motley array of costumes was in evidence.

A hair dryer, donated by Westinghouse, was presented to Mrs. J. Kerr for her portrayal of Daisy Mae, and a travel clock donated by General Electric, went to Ray Jonasson as Yogi Bear.

Entertainment provided by various groups of wives ranged from a saucy play to a strenuous display of can-can dancing.

Once again, our thanks to the wives for a thoroughly enjoyable evening.



USE OF SEAL

Section 19 of The Engineering Profession Act reads as follows:

Every person registered under this Act shall have a seal, the impression of which shall contain the name of the engineer and the words "Registered Engineer, Province of Manitoba," with which all estimates, specifications, reports, working drawings, plans and other documents issued from his hand shall be sealed.



J. W. SANGER, P. Eng.

In 1881 Thomas Edison developed the first electric power plant in the world; on December 19, 1886, in the City of Bristol in England, John Sanger was born; he was destined to follow in Edison's footsteps years later and to make a very large contribution to the development and usage of electrical power in Winnipeg.

As a boy Mr. Sanger received most of his education at Heston House School located in Middlesex just outside London and entered Faraday House in London in 1903, to study electrical engineering at the comparatively early age of 17. Upon completion of his studies in 1906, Mr. Sanger took a position as a junior engineer with the Midlands Electric Company acting in that capacity for two years. Subsequently Mr. Sanger acted as a regional supervisor for the Midlands Electric Company in Staffordshire up to his departure for Canada in January, 1911. Looking back on those days he recalls that in the England of that era there were many small power utilities supplying power of dissimilar electrical characteristics in adjacent areas. Even in those days the necessity for standardization to permit system interconnection was quite apparent, but many years were to pass before it could be accomplished. Reciprocating steam engines were the prime movers, with very few steam turbines in existence and a fairly large-sized generator of that period was capable of delivering about 3,000 watts of power! Among Mr. Sanger's recollections of his early career in England is one in which he believes he witnessed one of

the first demonstrations in England of an electric range manufactured by Tricity Company — apparently the range demonstrated was a very crude device as compared to the common household electric range of today and any interested homeowners of that day had to witness the demonstration in an electrical sub-station. Sales were very few; the price of electricity was six cents per KWH and gas was a strong competitor.

In 1911 Mr. Sanger reached Winnipeg, having read in the *Electrical Review* that engineering personnel were required for the City of Winnipeg Hydro-Electric System. With a true pioneering spirit he arrived in Winnipeg taking a chance that he would be engaged by the utility. He was successful in his endeavour to find work with the utility and in 1912 he was appointed Superintendent of Distribution. During the period 1912 to 1916 Mr. Sanger also spent about 2 years with Siemens of Canada which had a branch in Winnipeg.

From 1916 to 1922 Mr. Sanger held the position of Superintendent at the Pointe du Bois power plant of the City of Winnipeg Hydro Electric System. He emphasizes that the only link between the plant and Lac du Bonnet in those days was by an infrequently operated private railway and so entertainment at Point du Bois had to be devised by the personnel working there; it is interesting to know that Mr. Sanger built the first curling rink in that area and also coached the would-be curlers in the art. A memento of the esteem in which he was held at Pointe du Bois is to be found in Mr. Sanger's residence — an eight-day clock with the letters POINTE DU BOIS picking out the hours, which was presented to him on leaving the power plant.

In 1922 Mr. Sanger was appointed Chief Engineer of the City of Winnipeg Hydro Electric System and continued in that capacity up to 1945 when he became General Manager of the utility. During this period he was responsible for the thermal power plant installed by the City of Winnipeg at its May Street-Station. It was the first thermal power plant in this area to adopt the use of pulverized coal fuel. The May Street plant was designed to be operated combined with a district heating system for the downtown area of Winnipeg. To round out the economy of operation an initial installation of two electric boilers of 15,000 KW total capacity was made in order that the off-peak hydro-electric capacity of the Pointe du Bois plant could be utilized.

A short time after the completion of the May Street thermal power plant in 1924 Mr. Sanger started on the design and construction of the Slave Falls hydro electric plant on the Winnipeg River. On September 1st, 1931, the first two units, each of a capacity of 12,000 H.P. were

placed in operation, the remaining six units to be installed as required until the station reached its ultimate capacity of 96,000 H.P.

In addition to his activities as Chief Engineer of the City of Winnipeg Hydro Electric System Mr. Sanger was intimately connected with the Manitoba Power Commission as Vice Chairman between 1931 and 1948. During this period the Government of the Province of Manitoba appointed the Manitoba Electrification Enquiry Commission to report mainly on a proposed plan of farm electrification for the Province. Under the chairmanship of Dr. Emerson P. Schmidt of the University of Minnesota and his three colleagues, Messrs. Cottingham, Caton and Sanger, the foundation was laid for the now complete system of power supply to all towns, villages and farms of the Province.

In 1951, Mr. Sanger retired from the City of Winnipeg Hydro Electric System having been in service with the utility for close to an aggregate of forty years. One of the many monuments to the efforts to develop the domestic usage of electricity was the electric range and water heater campaigns which raised the domestic utilization in Winnipeg to a record high for Canada.

His years of retirement have so far not given too many chances for relaxation to Mr. Sanger. He is still a very active supporter of the Winnipeg Children's Hospital. He was elected Chairman of the Building Committee of the Children's Hospital in 1948 and continued in that office for twelve years. In 1961 Mr. Sanger travelled in Kenya and Uganda and visited a game reserve where animals live in their natural surroundings; however he reports he found the many nationalities of the people he saw and their political problems more interesting than the wild animals! In Uganda he visited the Owens Falls Hydro Electric Plant located at the head waters of the River Nile.

During the Second World War, Mr. Sanger was National Chairman for the Sea Cadets of the Navy League of Canada; it was during the war that one of his sons was lost at sea when the H.M.C.S. "Valleyfield" was sunk. His second son who also served in World War II was killed shortly after the end of the war as a result of an accident.

Recognizing the long and outstanding service by Mr. Sanger not only to the City of Winnipeg but to the Province of Manitoba, the University of Manitoba conferred the honorary degree of LL.D. on Mr. Sanger on May 20th, 1959; subsequently the Association, wishing to place on record the esteem in which Mr. Sanger has been held by the members, presented him with the Association's Meritorious Service Award.—T. G. H. McK.

MacKENZIE WINS GOLF TROPHY

Neil MacKenzie won top honours in the Fall Golf Tournament and will have his name engraved on the Sullivan Cup, which President Weber presented to him. The winning score was 68½ which would be regarded as something of a feat were this not a handicap tournament. Runner up was E. A. Lipinski with a score of 69. Siggie Goodbrandson carded the low gross of 81. Allegations that he got a few holes wholesale because he is on the Sports Committee are not true. Joe Brako had the second low net.

Prizes for the tournament were donated by W. L. Wardrop & Associates, Anthes-Imperial, Supercrete and Harrisons & Crosfield. Messrs. Brako, Lipinski, McInnis, Kavanagh and Lay had birdies. Blair McLenaghan won the award as the most honest golfer with 128, it being felt that Ed Debusschere who had recorded 148 had not counted all his whiffs and was therefore disqualified.

Old Timers Nick Diakiw and Blair McLenaghan are discovering that golf is a young man's game. They required a prolonged rest between the 9th and 10th holes and it was reliably reported that they took 6 hours and 15 minutes to go around the course. The usual contingent from the Highways Branch turned in the usual style of golf. Dick Galbraith was missed on the links. He is in hospital and was unable to make the tournament.

Chairman Bob Gottfred and his Committee members Siggie Goodbrandson and Bob Byers deserve our thanks for a good tournament.

It would appear that there are still a few engineers who can take some form of exercise more strenuous than turning on the knob of a T.V. set so in spite of the fact that the tournament conflicted with a telecast game, 81 stalwarts preferred the wide open spaces of Rossmere.



INSURANCE

The North American Life Assurance Company have advised that the bonus on the group life policy is being increased from 30% to 40% effective October 1, 1963, without increase in premium.



HELP WANTED — MALE

Professional Engineers are required to train for commissions in the 7 Technical Regiment, RCEME Militia. Phone 774-8617 or contact 7 Technical Regiment, Room 143, Minto Armoury on Tuesday or Thursday evenings.

President's Report

By T. E. WEBER, P. Eng.

The August, 1963, issue of The Canadian Professional Engineer reported in detail the results of the referendum held on Confederation simultaneously in all Provincial Associations and the Engineering Institute of Canada. The headline "Confederation Rejected" summarized in two words the result of 45 years' study, planning and negotiations representing thousands of hours of time expended by Engineers across Canada.

Where does the Engineering Profession stand today as a result of this decision?

As autonomous bodies the Provincial Associations remain unchanged. At the national level the Canadian Council of Professional Engineers was established as a co-ordinating agency. The C.C.P.E. within its limited resources has improved the position of the Engineering Profession in Canada. The national position must not deteriorate as a result of this decision on Confederation and, therefore, it is my opinion that every effort must be expended to improve and strengthen the Canadian Council of Professional Engineers.

A special meeting of Canadian Council will be held on October 28th and 29th at which plans will be laid for the future of C.C.P.E. The program must provide for close co-operation with the technical side of the Profession represented by the Engineering Institute of Canada, Chemical Institute of Canada, the Canadian Institute of Mining and Metallurgy as well as other Technical Societies. If this principle is adopted and followed, along with expanded services in the C.C.P.E. through the co-ordinated efforts of the Associations, the Engineering Profession will grow in stature and receive the esteem and confidence of the general public.

In 1938 a special committee of the Engineering Institute of Canada recommended that, wherever possible, agreements for consolidation of engineering activities be signed with Provincial Associations. Under such agreements the E.I.C. was to act as the national body. Seven Associations have signed agreements with the E.I.C. In December 1950 our Association signed such an agreement which was to encourage joint membership and consolidate the activities of the two organizations in the Province.

Over the past thirteen years experience has pointed up a great many practical operational difficulties imposed by the terms of the Agreement. In addition the desired results of a joint-membership for each Professional Engineer has not been attained. At the present time of the 1300 members in the A.P.E.M. there are only 388 joint members.

Both the Council of the Association and the Engineering Branch Management Committee of the E.I.C. have been aware of these difficulties, however, due to the Confederation issue, no definite steps were taken towards a solution to the problems. Since Confederation has been rejected it is, therefore, imperative that these matters be resolved as quickly as possible. A special meeting of the Association has been called for Wednesday, October 16th to discuss the Joint Agreement. A detailed outline of the Agreement will be given along with a full explanation of the problems facing both organizations in their operations under it. Your attendance at this meeting will ensure that the decision reached in respect to the future of the Agreement will represent the opinion of the majority of the members of the Association.

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COUNCIL MEETING May 6, 1963

Those in attendance were President Weber, Registrar Marantz, Vice-President Chappell and Councillors Chant, Borgford, Sommerville and Harland.

Council approved 18 applications for registration in the Association. Three applications were rejected due to insufficient engineering experience. One Engineering Pupil and one Engineer in Training were enrolled.

Council then discussed at length specific violations of the Engineering Profession Act that have come to the attention of the Association.

The Minutes of the Board of Examiners were considered by Council. Several changes to the Syllabus of the Association examinations have been proposed by the Board. The proposed changes to the Intermediate examinations are the addition of Differential Equations to the Mathematics course and the removal of the subject of Heat from the Heat, Light and Sound course and the addition of an examination in Thermodynamics. The proposed change to the Civil Engineering Curriculum would see five mandatory examinations written instead of the present three and a sixth to be chosen by the candidate from two other subjects. A decision on this matter was deferred.

Also considered by Council was the appointment of an Acting Registrar from June to September, in the absence of Registrar Marantz, who would be in Europe. It was decided that Dr. Landon would be asked to act in this capacity.—R.M.S.

COUNCIL MEETINGS**May 29, 1963**

Those present were: President Weber, Councillors Rettie, Sommerville, Chant, Harland, Hoogstraten, and Acting Registrar Landon.

The first matter on the agenda was the letter to accompany the ballot on confederation. It was noted that copies of the commission report would be sent out with the ballot but it was felt that a letter expressing council's views should also accompany the ballot. It was decided that the letter should point out the increase in fees that would result if confederation were enacted.

The Board of Examiners Syllabus Revisions were then approved.

At a previous meeting, council had discussed the possibility of including biographical notes on prospective councillors along with election ballots and the matter had been referred to the bulletin committee for its comments. Council received a letter from the bulletin committee pointing out that there is insufficient time between nominations and balloting to make this feasible. It was decided to drop the matter for this year. However, the proposal was referred to the bulletin committee and the legislation committee to see if the by-laws can be changed to allow more time between the close of nominations and balloting in the future.

Council then discussed arrangements for the annual General Meeting of the Association. The meeting will be held on Nov. 28 and the location will again be the Fort Garry Hotel. It was resolved that the subject for the guest speaker would be "Engineering Education". The selection of guest speaker will be made at the next meeting.—R.M.S.

**SPRING GOLF TOURNAMENT**

The Spring Tournament was held at Pine Ridge Golf Club. Once again we were favored with a beautiful day for the event. Ken Williamson won low gross, Gerry Smith won low net and Nick Diakiw had high hidden hole. The day wound up with a steak dinner and presentation of prizes. Committee Chairman Bob Gottfred, assisted by Bob Byers, ably handled the day's events.

**ENGINEER IN POLITICS**

Our congratulations to Alex Soroka, P. Eng., who was elected to a five-month term on St. James City Council.

Alex Soroka is employed by the Engineering Department of Trans-Canada Airlines. He should then be doubly interested in keeping TCA's overhaul base in St. James.

We wish him luck in his new office.

COUNCIL MEETING**September 5, 1963**

Council met on September 5, 1963, with President Weber, Vice-President Chappell, Acting Registrar Landon and Councillors Chant, Noonan, Hoogstraten, Harland, Rettie and Borgford present.

Six Engineers in Training were enrolled, four transfers were approved and nineteen applications for registration were accepted.

Twelve members were reinstated to membership in the Association. All but one of these had been suspended for non-payment of membership fees. All have now paid the required fee.

Council then discussed arrangements for the Annual General Meeting. The topic for the speaker, "Engineering Education," had been selected previously. It was decided to ask Prof. Ford of the University of Alberta, President of the Alberta Association, to be the guest speaker.

A committee consisting of Councillors Noonan, Borgford and Harland was appointed by President Weber to consider changes in the pension plan for both present and future employees of the Association.

The Confederation vote was then discussed. The Canadian Council of Professional Engineers will be holding a meeting on October 29 at the Royal York Hotel in Toronto to decide policies as a result of the vote. Council agreed to send an official delegate to the meeting to represent the Manitoba Association.

Council considered a letter received from the Engineering Technicians Committee asking for authority to study a proposal that the Association of Professional Engineers give assistance in setting up an Engineering Technicians Association. It was noted by Council that some other provinces either had a Technicians Association or were in the process of forming one. The Engineering Association could be of assistance in helping form such an organization by sharing office space or helping to issue certificates. The Engineers Association would give initial assistance to the technicians but eventually the technicians would form an independent association. Council moved that the Engineering Technicians Committee be given authority to review this proposal and make a report to Council.

Council then discussed a letter from the Technical Service Council. This is an employment agency which is supported by industry that has been organized in eastern Canada. It is exploring the possibility of setting up a Winnipeg office and wishes to make itself known to Association members. Council agreed that if the Technical Service Council would submit details of its organization to the Association, they would endeavour to have them published in the Bulletin.—R.M.S.

Obituaries

The sympathy of the Association is extended to the relatives and friends of these former members:

JOHN W. BATTERSHILL

Former City Engineer for the City of East Kildonan, where he was employed for 47 years. Mr. Battershill passed away on July 21st. He was a Past President of this Association, and active in its work for many years.

STANLEY J. BUTCHER

Mr. Butcher passed away suddenly on August 24th. He had been employed by the City of Winnipeg, Engineering Department, for many years. Mr. Butcher was a School Trustee for River East School Division, and a Past President of Elmwood East Kildonan Y.M.C.A.

JOHN F. CUNNINGHAM

Mr. Cunningham passed away in Winnipeg on March 27th. He had been employed by the Federal Department of Public Works in Selkirk until his retirement in 1960. He had been a former Town Councillor in Selkirk, was a life member of the Selkirk Chamber of Commerce and was active in the Boy Scout movement.

WALTER M. SCOTT

On May 8th, Mr. Scott passed away in Winnipeg. He was a former Chairman of Commissioners of The Greater Winnipeg Water and Sanitary Districts. He had spent an active lifetime in Municipal Engineering as shown by his Life Memberships in the Engineering Institute of Canada, the American Water Works Association, the New England Water Works Association and the Association of Professional Engineers of Manitoba.

HARRY R. URIE

Mr. Urie passed away in Brandon on June 15th. He had been employed by the Province of Manitoba Highways Branch for 39 years, until his retirement in 1958. He was a life member of the Brandon Curling Club.

CORRESPONDENCE COURSES FOR PROFESSIONAL ENGINEERS

The Association of Professional Engineers of Ontario, is sponsoring, in co-operation with the University of Toronto Extension Division, a series of twenty-seven courses. These courses are available to members of all Provincial Associations.

Subjects are in two groups, Business Administration and Technical. The former includes English, Economics, Law, Marketing, and Business Organization among others. The latter includes Computer Programming, Mathematics, Statistics, etc.

Fees are \$50.00 except for Computer Programming which is \$125.00. Text books are not included.

While these courses do not carry academic credits towards a degree or a diploma, an examination is held in May and a letter is provided confirming the results.

Application is to be made before September 30 and full details are in the Association Office.



USES OF CONCRETE

A meeting of the American Concrete Institute will be held in Toronto in the Fall of this year. The Chairman of the History of Concrete Committee has advised that they are endeavouring to compile an exhibition of unusual, outstanding and historical uses of concrete. To this end they wish to obtain some photographs of early concrete work, and any other examples or uses of concrete which might be considered to be exceptional in their size, individuality, or method of construction. Prints or photographs are also requested. These will be returned. Also requested is any basic information with reference to the photographs, such as date of completion, strength of concrete, type of concrete, and whether they are still in existence. Credits would be given at the time of the exhibition to the engineer responsible for the project and the source of the photographs. It is hoped that this Exhibition might become permanent and travel around the North American Continent. Please send any information to Mr. R. P. G. Pennington, 119 Davenport Road, Toronto 5, Ont.



LOST ????

Does anyone know the whereabouts of K. S. C. Jonson, or W. H. Strange? Please advise the Association office, WH 3-6745.

Flin Flon News

By M. N. COLLISON, P. Eng.

Tony de Vette, P. Eng., was married on August 18 and spent his honeymoon motoring to the West Coast and back, including a visit to the remnants of last year's Seattle Fair.

W. A. Morrice, P. Eng., along with Mrs. Morrice, is attending the Mines Ministers' Conference in Halifax this week, after which he will take a few days' vacation before returning to work at the end of September.

E. Austin, P. Eng., with Mrs. Austin, spent several days golfing at Waskesiu earlier this month. Eric also went to The Pas on the opening day of the waterfowl season. He reports an excellent shoot, with lots of birds in the air and enough bagged to make it worthwhile. In fact, shooting was so good, a number of shots were missed due to sighting difficulties when ducks persisted in resting on his gun barrel.

J. B. Fairbairn, P. Eng., has a "Do-It-Yourself", Project well on the road to completion. Barton is busy installing concrete basement walls under his home.

S. F. Liss, P. Eng., reports a wonderful holiday during August, with a week spent in Edmonton visiting relatives and, also, attending his sister's wedding. The remainder of his vacation was spent at his summer camp at Lake Athapap. Stan reports that his daughter has taken over the fishing laurels in the family with a catch of 47 Perch.

J. R. Bray, P. Eng., has recently been appointed Chief Engineer of Mines for the Hudson Bay Mining and Smelting Company. Bob reports a good vacation trip to Saskatchewan and the Calgary Stampede, as well as an extensive and interesting visit to the new potash mine at Esterhazy. This sounds like a "Busman's Holiday" to me.



APPOINTMENTS

G. A. Morris, P. Eng., Chairman of the Membership Committee has announced the appointment of M. Corkal, P. Eng., as Membership Committee Liaison Officer for The Pas area.

Two members of this Association have recently received appointments from the Manitoba Government. R. Noonan, P. Eng., was appointed Chairman of the newly formed Design Institute and T. N. McLenaghan was appointed Chairman of the Research Council.

FALL FROLIC 1963

Anyone who missed the Fall Frolic on September 20th, missed a fine evening of conviviality and laughter second to none. The members of the Social Committee ably chaired by Lou Earp, spared no expense in bringing in "high priced" models from New York's Latin Quarter to reveal the latest in Fall Fashions. The coterie of models was "chaperoned" and introduced by Madame A. Burrows who let it be known that these were not "low priced" girls. The theme of the Trousseau uncovered the clothing gamut from the demure to the aggressive, from the well-engineered air conditioned lingerie to the problem clothing due to the unprepared Scout. The bevy of succulent and shapely models included such fashion notables as Fifi Bell, Coco Isberg, Sheila Schioler and Mitzi McLenaghan who were chosen from the audience. Members of the Social Committee who acted as models included Messrs. Earp, Coutts, Crawford, Grimes, Scotten, Chorley and Roylance.

The presentation of the 1963 awards from the Association turned out to be as hilarious as the Fashion Parade it preceded. The Humane Society Award to Wilf Garvin as a prince among animalitarians, consisted of the friendliest live goose as an addition to his menagerie. The Big Game Award to Bob Byers of an eight point elk head as the year's best Buck Passer presented Bob with more than a transportation problem. Other awards went to Bob Stokes for Good Housekeeping, Vicki McBain as the Grass Widow of the Association Party times, to Cam Roylance for proficiency in Spelling CASH at a supermarket and to Jim Scotten for faithful non-attendance at committee meetings.

The highlights of the ample buffet supper were the barbecued beef and corn on the cob. There were no food hungry engineers left by the time the dancing started.

Promptness was the order of the evening as the dancing started to the music of the Dave Stubbs trio at 9 p.m. Had there been a prize for the most capable and entertaining dancers of the evening the judges would have had difficulty deciding between Mr. and Mrs. Don Sampson and Mr. and Mrs. Cam Roylance. Attractive twisters were Lloyd McInnis and Mrs. Dennis HARRS.

At last word Bob Byer's son was riding the elk around the back yard so Bob's Playboy pictures are still safe over the mantelpiece.—E.A.S.



CONGRATULATIONS

To Mr. and Mrs. V. M. Austford on the birth of a daughter, Leslie Denise.

Article 27 of The Engineering Profession Act reads as follows:

SUSPENSION AND EXPULSION
Disciplinary Powers of Council

27. (1) The Council may, subject to the by-laws, reprimand, censure or suspend or expel from the Association any member guilty of unprofessional conduct, negligence, or misconduct in the execution of the duties of his office, or convicted of a criminal offence by any court of competent jurisdiction, but shall not take any such action until a complaint under oath has been filed with the registrar and a copy thereof forwarded to the member accused. The Council shall not suspend or expel a member without having previously summoned him to appear to be heard in his defence, nor without having heard evidence under oath offered in support of the complaint and on behalf of the member, if any. The Council shall have the same powers of taking evidence compelling the attendance of witnesses, the production of books, papers and documents and the punishing for contempt or the failure to comply with the orders of the Council as a commissioner appointed to hold a public enquiry has under "The Manitoba Evidence Act." All evidence shall be given under oath and taken down in writing by the registrar or by a reporter duly sworn.

Appeal

(2) Any member so suspended or expelled may, within thirty days after the date of the order of resolution of suspension or expulsion, appeal to a judge of the Court of Queen's Bench from such order or resolution, giving seven days' notice of appeal to the Council, and may require the evidence taken to be filed with the proper officer of the court, whereupon such judge shall decide the matter of appeal upon the evidence so filed and confirm or set aside the suspension or expulsion, without any further right of appeal; and, if the suspension or expulsion be confirmed, the cost of the appeal shall be borne by the member suspended or expelled.

Prohibited from Practice

(3) Unless the order or resolution of suspension or expulsion is set aside on the appeal or the judge or the Council otherwise orders, the member so expelled shall not engage in the practice of professional engineering in Manitoba or the member so suspended shall not practice until expiry of the period of suspension.

No Practice Pending Appeal

(4) Pending an appeal the member so suspended or expelled shall not practise. S.M. 1935, c. 13, s. 27 am.

Transferred



C. R. PIKE, P. Eng.

C. R. Pike, P. Eng., has been transferred by the C.P.R. to Schreiber, Ontario, where he has been appointed Division Engineer. Charlie served on both the Social Committee and the Student Liaison Committee, and was chairman of both these Committees. Charlie is that fitting combination we like to think epitomizes the profession in the eyes of the public — a gentleman and an engineer. He has served this Association well and will be missed by his many friends and associates. We wish him well in his new venture.

MOVING?

PLEASE let us have your change of address.

Please fill this out and mail it to the Association office, 418 — 265 Portage Avenue, Winnipeg 2.

Name.....

Old Address.....

New Address.....