

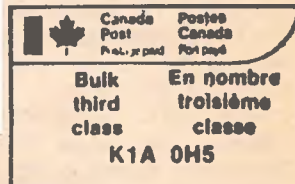
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# Metric monitor

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## Mining company conversion progress

### Texasgulf Canada goes metric

Surveys carried out by the Mines Sector Committee 4.01 in 1978 and 1979 indicate an increasing amount of metric conversion activity is taking place in the Canadian mining industry. Questionnaires distributed to 125 mining companies drew a 35% response in 1978 and a 60% response in 1979.

The questionnaire, based on 26 required conversion activities in eight major activity areas of the Sector Plan, requested each company to indicate whether the specified activities were "completed", "in progress" or "not started".

The eight major activity areas covered employer/employee relations, design and engineering, production processes, materials and supplies, business systems, research and development, marketing and training.

The respondents' replies, averaged over the eight major activity areas, indicated that in 1979, 69% (54% in 1978) of the companies had either started or completed their metric conversion programs. It is expected that replies to a 1980 questionnaire will indicate even further progress.

The following report on one company's successful conversion program is based on a paper presented to Sector Committee 4.01 Mines at its Edmonton meeting, 80-06-04, by Elmer Randveer, chief engineer technical services, Texasgulf Canada Limited.

Texasgulf Canada Ltd., the metals company of Texasgulf Incorporated, owns and operates a base metals mining and metallurgical complex in Timmins, Ontario. Currently, the operation mines and processes some 12 000 t/d of complex sulphide ores containing copper, zinc, lead and silver as the major minerals. The final products include various grades of zinc metal, cadmium metal, zinc concentrate, copper concentrate, lead-silver concentrate, tin concentrate and sulphuric acid.

In response to the metric conversion plan under Sector 4.01 — Mines, the Texasgulf internal metric conversion program was launched in 1977-11. The program was recognized and accepted at the top management level and a metric policy statement was issued by the vice-president and general manager. This document committed the company to a three year internal conversion program, leading to adoption of the SI units of measurement by the end of 1980, subject to adjustments as dictated by external factors.

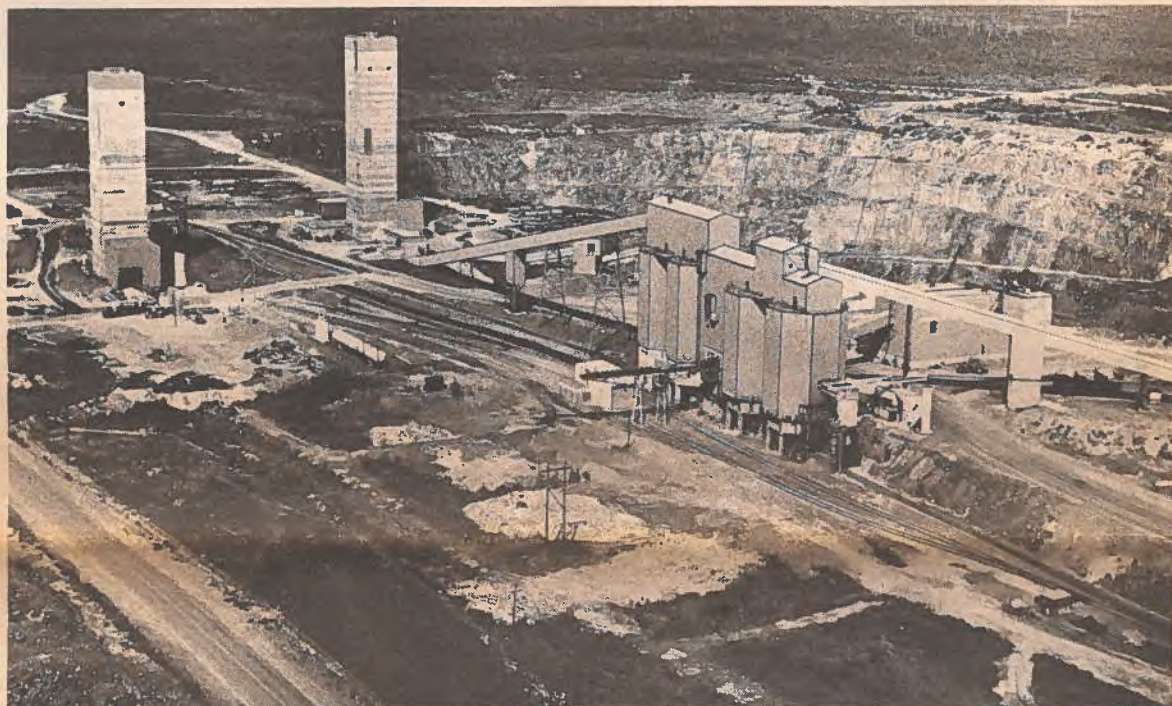
Subsequent to the metric policy statement a metric steering committee was formed, consisting of a general metric conversion coordinator and one representative from each departmental or area metric committee. Two assistant general coordinators were appointed for the minesite and for the metsite respectively. The departmental committees were assigned the responsibility of establishing their own timetables and scheduling the various conversion phases, such as the employee awareness program, the training program, identification of the problem areas, conversion to the SI units and the follow-up. Since 1977-11, coordinating committee meetings have been arranged as frequently as required to discuss and to resolve general administrative and technical problems. Lateral communication between the departmental committees has served to coordinate the conversion steps between the departments.

No capital funds were allotted for the metric conversion program. Costs encountered in the conversion process have been absorbed in the operating budgets without any noticeable overruns. Most of the costs have been limited to such items as the metric personal tool subsidy, conversion of the weight-ometers, replacement of pressure, flow and temperature gauges, replacement of drafting scales, measuring tapes, traffic signs, process data log sheets and other reporting forms.

Training programs were scheduled and conducted on a "low key" basis. The employees were initially given only the information needed to perform their assigned tasks. Most of the training took place at crew meetings, safety meetings or on a "one to one" basis. Only the maintenance department found it necessary to arrange for formal classroom instruction.

Conversion to the SI units of measurement followed closely the initial schedule except where delayed by external factors, such as the delivery of metric tools, equipment or supplies. Except for scales, measuring devices and selected tools, the plant machinery and mobile equipment will not be affected by the metric conversion process. As the units approach the end of their life, equipment built to metric dimensions will be used for replacements, depending on availability.

With the exception of a few, isolated cases, the acceptance of



The success of the metric conversion program at the Texasgulf Canada Ltd. (Kidd Creek minesite) at Timmins, Ontario followed a top management decision taken in 1977 to go metric.

metric units has been good. Once the simple relationship between SI units became evident, the new system found fast acceptance by the employees. In the metallurgical site engineering department in particular, the simple relationship between SI units and the

associated easy calculations have generated many favourable comments.

In short, at Texasgulf, in nearly all aspects the metric conversion program has been a non-event and attributable to such proven factors as a clear and positive

metric policy statement by the top management, dedication and positive attitude by the metric committees' personnel, low key approach in the training programs, early identification of the problem areas and a sensible cost control approach.

## Study answers questions affecting football conversion

By Bob Mellor

Going metric won't change the nature of Canadian football as long as it stays with three downs, according to indications from a study conducted during the 1979 season.

The character of the Canadian game changes only when a fourth down is introduced.

That's the major conclusion drawn from a comparison of three leagues, which was presented at the 1980 annual meeting of the Canadian Amateur Football Association in Quebec City.

Arguments that an extra down should be allowed when teams have to go 10 metres for a first down (an extra stride in distance) have been a major stumbling block in the path of metric conversion of Canadian football.

However, contentions of many football people — including the commissioner of the Canadian Football League, Jake Gaudaur —

that going to four downs would mean less passing, fewer punts, and fewer last-down gambles are borne out. Gaudaur has always feared that a move to metric would lend weight to the arguments of a vocal minority for a fourth down, and thus result in a less exciting game.

In the three leagues monitored, it only happened with four downs.

There was more passing, more punting and more last-down gambling in the three-down game; adding a fourth down resulted in a game played primarily on the ground.

The three leagues involved in the study were the Ottawa High School League, which plays three downs on a conventional field; the Peel County High School League which plays four downs on a metric field; and the Ontario Colleges Football League, which has converted to metric but remained with three downs.



The metric field, 100 x 60 m, fits into all existing conventional fields of 110 x 65 yards. The conversion results in a field that is shorter by the length of a football at either end, with the center stripe becoming the 50 m line.

George Brancato, the Ottawa Rough Rider coach whose team tried out the metric field in a pre-season training camp experiment in 1979, said he didn't think the field would make any difference to the game — but that a change in the number of downs would.

The most significant difference that showed up in the three-league study was in the amount of punting, where the four-down league had only 50% of that in the conventional league, and only 24% of that in the three-down metric league.

(continued on page 4)



# Around the world with metric

This issue of the Monitor continues a series of articles reporting the degree of metric conversion which has been achieved in individual countries.

## Australia

Introduced in 1970, the metric conversion program has been carried out more rapidly and more readily than expected and is nearly completed. The metric system is now in general use, even though traces of the imperial system will remain for some time.

Since 1975, many programs have been completed. The Metric Conversion Board is no longer responsible for important initiatives or decisions; its work is expected to be completed this year.

Progress over the past five years can be summed up as follows:

- Since 1976, all plans and specifications for buildings and construction projects submitted to authorities have had to be in metric units.
- With a few exceptions, importing non-metric measurement devices has been prohibited since 78-12-01.
- All measurement devices used in the retail trades (rulers, scales, gas pumps, etc.) must be graduated in metric units only.
- Prepackaged food and consumer products (canned goods, milk products, beverages, alcohol and liquor, paint, detergents, etc.) are sold in metric sizes only.
- The weighing and measuring of merchandise in the presence of the consumer is now done in metric units only; this provision is already enforced in Australia's large cities.
- The production and sale of numerous other products, such as floor covering, carpeting, cordage, fabric, cut wood, film and photographic paper, threaded fasteners, are now in metric units.

- In education, metric measurement was introduced more than six years ago.
- In dietetics, the kilojoule was officially adopted to replace the calorie in expressing the energy value of food products.
- All measurement-sensitive technical standards published by the Standards Association of Australia are metric.

The legislation of the Australian States has been revised to authorize the use of metric measurement and to insure orderly conversion in the retail trades. The states of Southern Australia, Western Australia and Tasmania have virtually completed their conversion to the metric system.

In 1979-04, the Weights and Measures (National Standards) Regulations were considerably amended by the publication of Statutory Rules 1979, No. 65: deletion of a number of non SI units (metric and imperial) from the list of legal units and definitions of metric units taking into account recent international decisions.

The advantages of metric reform in Australia are becoming more and more evident each day as the metric conversion program comes to an end. The conversion which remains is long term; it will take place only after consultation with the sectors involved and once the government is assured that there is no longer any need for the units which will be abandoned.

## New Zealand

Metric conversion, adopted in 1969 on a voluntary basis, is practically completed under the program established for a seven-year period.

Conversion is now taking place in every sector of the national economy: industry, agriculture, construction, fuel and energy, transportation, postal rates, road signs, sports, etc. Only retail trades

are lagging behind the scheduled program since some retailers refuse to make any change that is not legislated.

In 1976, 1977 and 1978, the government therefore took legal action to amend the Weights and Measures Act of 1925 in order that weighing and measuring devices graduated in imperial units no longer be verified and reverified, and as of 1979-07-01, to make metric measurement mandatory in the retail food industry and other industries.

After ten years of existence during which it has worked efficiently towards metric conversion in New Zealand, the Metric Advisory Board ceased its activities at the end of 1979.

## China

In 1959, the State Council published the "Decree on the standardization of the measurement system" and defined the metric system as the basic system of measurement. For over twenty years now, the metric system has been popularized and used throughout the country. At the present time, the measurement system of the People's Republic of China is based primarily on the metric system. This means that the essential basic standards and secondary references necessary for the national economy, as well as standard scales, have been established.

The industrial standards recently proclaimed by the State are in metric units and are used extensively in production. Imperial units still remain in use in certain parts of light industry (sewing machines, bicycles, etc.), in the textile industry and in mechanical repair shops. Old standards based on the imperial system are gradually being revised.

Metric measures are also being used in the scientific, technical, cultural and educational fields as well as in publications.

However, it must be noted that the "Shi zhi" (domestic or mercantile system), which has been in use for a long time in China, continues to coexist with metric measurement in the traffic of merchandise and the purchase and sale of agricultural products. But simple ratios exist between "Shi zhi" units and metric units: 1 tche = 0.33 m, 1 kin = 0.5 kg, 1 cheng = 1 L; the moo (6 000 square tche = 0.20 ha) remains in popular use for land-measures.

On 1977-05-27, the State Council enacted the "Provisional regulations on measurements of the People's Republic of China". Articles 3 and 5 of these regulations stipulate:

*Art. 3. China's system of measurement is in the main the metric system, with the International System of Units (SI) being adopted step by step.*

*The domestic system now still in use will be phased out gradually.*

*The British system may not be used except in special cases approved by metrological departments at the provincial, municipal, autonomous regional or higher level.*

*Art. 5. The national standards of measurements are the foundation for achieving nationwide unification of measurement values. The State Bureau of Metrology of the People's Republic of China will organize research in metrology and establish these standards in the light of the needs of production and construction. These standards shall be put into service after certification by the state. . .*

In 1979-03, the Committee for the dissemination of SI was formed. A project is also currently underway to develop names and symbols for the units of measure-

ment; this project involves the best way to translate into Chinese the names and symbols of SI units in order to promote the dissemination and use of the system.

Complete conversion to SI is a very long process but the various sectors of the Chinese economy are already working in that direction. In 1978, the Department of Education issued an official notice in which it ordered that SI be used in all new textbooks for higher education. The "Shi zhi" system, still in use, will have to be gradually revised and the imperial system gradually abolished.

## Hong Kong

In 1971-07, the Legislative Council was informed that the government had accepted the recommendation of a board of inquiry to carry out metric conversion in the Departments of Public Works and Education and to prepare the necessary legislation to promote metric conversion in Hong Kong.

A Metrication Unit was set up for that purpose in 1972-07. At present, the Department of Public Works has, in effect, adopted

metric measurement, except in a few sectors where the changeover is not yet completed.

In 1976-07, an Order was issued, allowing the Governor to amend the legislation in effect replacing non metric units with SI units.

Since 1977-04-01, all new building projects must be designed in metric units.

The Department of Education has introduced metric measurement in school curricula; however, for practical reasons and primarily at the elementary level, a small number of teachers continue to use imperial measurement and the local Chinese system. In higher education and universities, metric measurement while not always SI, is almost the only system used.

A metrication committee modeled after the Australian Metric Conversion Board was set up on 1978-01-01. The Committee has proposed a five-year program for metric conversion in the private sector; it is hoped that government departments will be metric within two or three years. Since 1973, official weather reports are given in degrees Celsius only.

(continued on page 8)

## Chairman receives a special award



D.R.B. (Sandy) McArthur

A "special award" for an outstanding contribution made to society was awarded Metric Commission Canada's chairman D.R.B. (Sandy) McArthur at the Honors and Awards luncheon of the Association of Professional Engineers Geologists and Geophysicists of Alberta (APEGGA) held in Edmonton in May.

Mr. McArthur is a life member of APEGGA. He was raised and schooled in Toronto and obtained his Bachelor of Applied Science and Engineering degree at the University of Toronto in 1940. On active service with the Royal Canadian Electrical and Mechanical Engineers Corps from 1940 to 1946, he was awarded a membership in the Order of the British Empire (M.B.E.) for overseas services. He received his M.B.A. degree from Harvard University in 1947.

A senior consultant with Stevenson and Kellogg Ltd. until

1952, Sandy McArthur moved to Western Chemicals Ltd. and Western Minerals Ltd. as Manager, Director, and then Vice-President. In 1960 he joined Inland Cement in Edmonton as Secretary-Treasurer and became Vice-President, Executive Vice-President and then President. In 1973 he was appointed Chairman of the Board of Inland Cement Industries and Ocean Cement Limited, Divisions of Genstar Ltd., a position he held until his retirement in 1978.

Mr. McArthur is also a Fellow of the Chartered Institute of Administrators and Secretaries. He is Past President of the Edmonton Chamber of Commerce, Past President of the Alberta Education Association, Past President and Director of Klondike Days Association, member of the Advisory Board of the Commonwealth Games Association, and Director of the Management Advisory Institute of the University of Alberta.

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## In the Yukon

# Essays and competitions on metric



Winner in its category was this poster by Grade nine student Brenda Stehelin at the G.A. Jeckell Jr. secondary school, Whitehorse, Y.T.

The winner in the junior essay competition "How the metric system would benefit Canada" held during "Metric Week" 80-03 to 07, in the Yukon Territory elementary and secondary school system was grade seven student at Jack Hurland school, Whitehorse, Jackie Henley.

Jackie's entry, winner of a \$20 prize, was one among a number of

entries in a busy metric week program sponsored by the Yukon metric information centre, under the leadership of metric information officer Judy Saunders, Consumer and Corporate Affairs. Here is Jackie's essay:

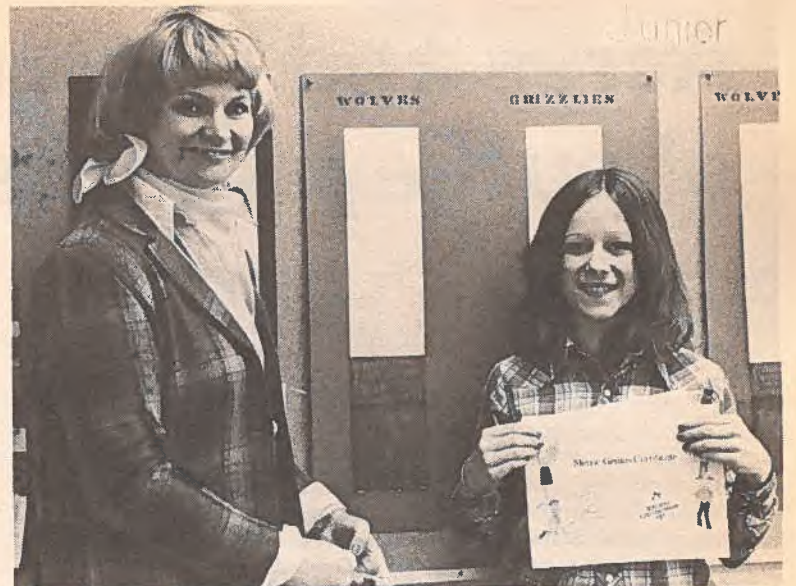
*How the Metric System Would Benefit Canada*

*I firmly believe in the Metric System. It is such an easy system; everything is based on tens. Our way of counting is based on tens; that is, once we get to ten we take it to the second place and start over again. Why complicate this by having an old system that everybody gets the hairies using? Why not have an easy no-strings attached system? What is the metric system? In this world of run-here, dash here, hurry! hurry! hurry! we need something to comply with this fast action. The metric system again is on top. People like to think fast, and we are all adjusted to tens, so you can figure out things much quicker.*

*Many people are giving the excuse, "But it's too hard!" and indeed, if you close your mind to it, it is hard. People are sometimes reluctant to admit their sentimentality, but when it comes to changing an established system, Oh Boy! They write Ottawa and go around getting people to sign petitions stating "We don't want metric" or "What's wrong with the old system?" They're all for modern technology, they wouldn't mind a car with only push button controlling, but why don't they want something that makes it easier in math? Being a student of course, that's what I think about, but it's much more than that. It's a whole new breakthrough in science!*

*And of course, (Thank heavens!) the kilometre will be shorter, so in gym you won't be so tired out at the end of "The one kilometre race" as you would be the one mile. The distance is not much shorter but it will make a small difference.*

*I think that at least in our so called "Modern World" we should have modern ways of counting!*



With Yukon metric information officer Judy Saunders looking on, Jackie Henley displays her metric genius certificate. The junior essay competition was open to students from Grades IV to VII. In the poster competition, "A metric Yukon" at the primary school level, certificates like the above were presented to all four finalists.



Above are the grade seven and eight winners in the banana loaf contest, a metric cooking class held as part of "Metric Week" in Whitehorse, Yukon Territory, 1980-03-03/07.

## Jantzen goes metric

Employing over three hundred people in its Vancouver plant, Jantzen of Canada Inc., with its varied sportswear line, swimsuits and sweaters, is one of Canada's larger fashion clothing manufacturers.

The company's conversion to metric, begun two years ago in the costing and manufacturing areas, has proceeded smoothly and has simplified operations, according to president George R.S. Crutchley. "I personally think metric is easy and a piece of cake" he said in a telephone interview.

Echoing these sentiments, plant manager Robin Hafting also mentioned the savings involved in having all internal plant operations in SI. Stock inventory is kept in kilograms and metres, work orders use SI units, the computer printouts in metric take less time to calculate than those in the imperial system. "We have never stopped to figure out the savings, but there is certainly a little bit everyday" he said. "There are special economies in using metric weights and measures".

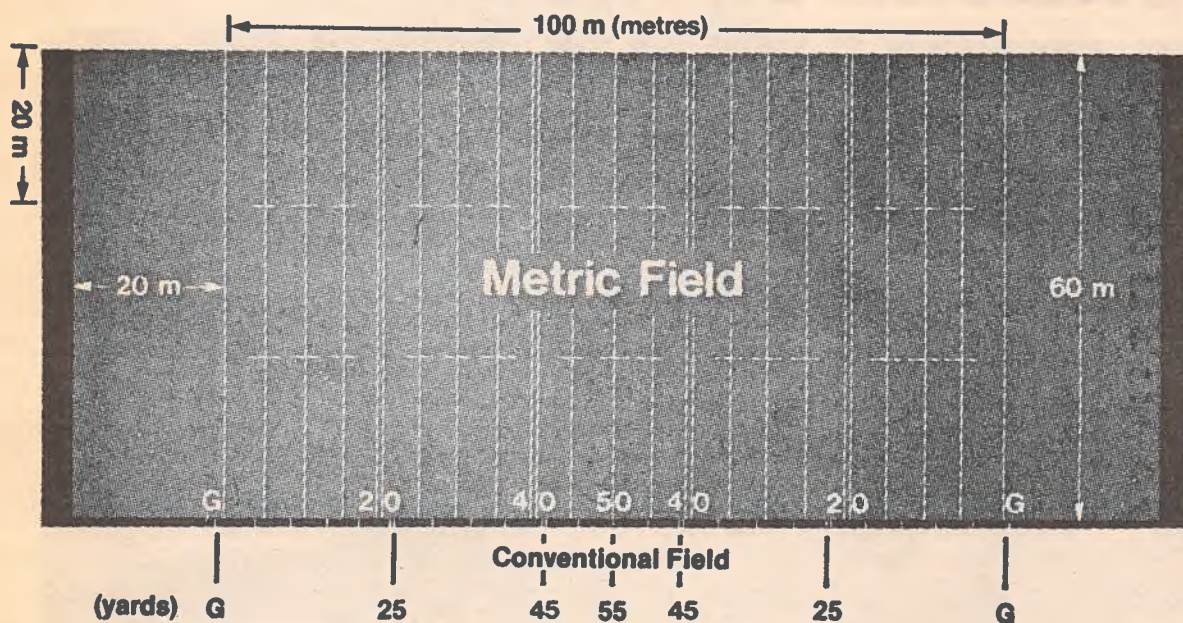
The first raw material inventory

taken in metric in 1978-06 involved a straightforward calculation from pounds to kilograms and yards to metres. The same summer, the costing department started using metric units. In 1979, pattern measurements, especially for menswear, were developed in centimetres, with the cooperation of the design and costing departments. The company's size labels attached to the swimsuits display centimetre sizes, alongside imperial.

Company employees, many of them from countries where SI is in everyday use, have adapted quickly and easily to the new system. An initial brief period was required to train clerks in making out orders and stocktakers in inventory control. After that, no formal training program has been necessary.

Clothing companies are part of Sector 7.20, Clothing. Sector representatives completed the investigation and planning phases in 1973 and 1978 respectively. The tentative implementation target date for the industry as a whole is 1981-01-01.

## Study answers questions affecting football conversion (from page 1)



### KEY INDICATORS

(Average no. per game)

	Conventional (3 down)	Metric (4 down)	Metric (3 down)
PUNTS	9.0	4.5	18.7
GAMBLES	5.1	0.8	6.4
FIRST DOWNS	31.5	29.4	47.7
PASSES	15.8	15.4	30.6
RUSHES	37.3	51.5	57.5

### PERCENTAGE OF PLAY

	Conventional (3 down)	Metric (4 down)	Metric (3 down)
PASSING	25%	21.5%	38%
RUSHING	60%	72%	46%
PUNTING	15%	8.5%	16%

With four downs, ground plays were 72% of the game, while the conventional league carried the ball 60% of the time, and the three-down metric league stayed

on the ground only 46% of the time.

In last-down gambles, the conventional league averaged better than five a game, the metric

three-down league better than six, and the four-down metric league less than one a game.

There was more passing in the three-down leagues, whether conventional or metric.

While it might be expected that a college league would naturally pass the ball more frequently than high school leagues, the fact that OCFL teams put the ball in the air for 54% of every game might be an indicator that, if anything, going metric might even enhance this aspect of the Canadian game.

Frequent changes of possession, a trademark of Canadian football, appears to be retained whether teams are playing on a conventional or metric field with three downs.

Participants in metric games have been almost unanimous in declaring that the metric field makes no difference. Patterns emerging from this study appear to bear them out.

## USMA grants 43 specialist certificates

The U.S. Metric Association (USMA), instituting a new awards program, recently granted 43 Certified Metrification Specialist certificates to a variety of recipients, including engineers, educators, industry personnel and government officials. Among the recipients were three Canadians, Dr. H. Don Allen, Nova Scotia Teachers' College, Truro, N.S.; Karl B. Nolte, K.B. Nolte Real Estate & Insurance, Islington, Ont.; and Guy W. Richard, of the Quebec Ministry of Education.

The USMA, using a credit-point system, issued the awards to

those with a proven five year minimum involvement in metric activities. At an initial presentation ceremony to five recipients, held 80-05-01 at the Northrop Corporation, Hawthorne, California, Dr. W.J. Chambers, Northrop vice-president congratulated the USMA on this worthwhile program. It will, he said, give employees the verification that they are qualified to work with SI units and employers access to a list of persons so qualified. The list is available from USMA headquarters, 10245 Andaso Avenue, Northridge, CA 91325 to any employer requesting it.



Five of the 43 recipients of the USMA Certified Metrification Specialist certificates received their plaques at a USMA chapter meeting held in Hawthorne, California, 80-05-01. They are (l to r) Gerald Hanson, San Bernardino (CA) County Dept of Weights & Measures; Albert N. Siggson, Northrop Corp; Gordon F. Abbey, Granda Hills CA; Dr. George A. Randall, Dept of Industrial Arts, Calif State University, Long Beach; and Charles E. Shipp, Northrop Corp.

## Acres and hectares and a short history of surveying lots in western Canada

by Orly Friesen  
Manitoba Department of Agriculture.

The agricultural areas of Western Canada were originally surveyed during the 1880's using a variety of survey systems. When the first settlers came they settled along the rivers and the land was divided into long, narrow river lots with the narrow side fronting on the river.

The dimensions of these lots varied greatly, with no two being the same. Land that was surveyed later was divided as nearly as possible into sections about one mile square. Because the earth is round, it is impossible to have all the sections square, or with the same dimensions.

The surveying equipment of the 1800s, the physical hardships of surveying an uninhabited land (much of it during the winter), and the pressure of getting such a gigantic job done in a short time led to further inaccuracies and errors.

In addition to these problems, the basic survey system was changed five times as the surveys proceeded north and west. In southern Manitoba, a road allowance was marked off around each section. In other areas there was a road allowance around every two sections. The width of road allowances also varied with some being 1 1/2 chains and some only one chain.

Various methods were used to compensate for the convergence of meridian lines. In some cases the sections in the townships south of the baselines were made slightly oversize and the ones north of the baselines slightly undersize. In other cases all the sections except those on the west side were made as near as possible to one mile square and all the deficiencies were placed in the most westerly quarter sections.

Under this system, any errors were placed in the most northerly and westerly quarters in the townships. Where two different survey systems met, fractional townships and ranges resulted.

The culmination of all the above factors resulted in very few sections in western Canada containing exactly 640 acres, and the term "more or less" has become a standard part of every survey description. The director of surveys for Manitoba estimates that less than one percent of all the quarter sections in Manitoba contain exactly 160 acres.

An example of the wide variations in existence are two quarter sections in Saskatchewan within two miles of each other, one containing 137 acres and one containing 194 acres.

Most quarters are much nearer to 160 acres with probably over half of them being in the range of 157 to 163 acres. An assumption that a quarter section is about 1/2

mile square is normally accurate enough for practical farming purposes.

The exact metric equivalent of 1/2 mile is 804.7 m, but since the 1/2 mile is approximate, using 800 m as the length or width of a quarter is sufficiently accurate. The difference between 1/2 mile and 800 m is about 15 feet, and since there is usually a headland or fence row at each end of the field, the actual cropped length of field is usually closer to 800 m than it is to 1/2 mile.

For a quarter section that is close to "normal", the overall dimensions can then be taken as 800 m by 800 m. The units of area used in the metric system are the square metre (m<sup>2</sup>), and the hectare (ha) which is 10 000 m<sup>2</sup>. A nominal quarter section (800 m x 800 m) therefore has an area of 800 multiplied by 800, divided by 10 000, or 64 ha. In most cases it is the dimensions of an individual field rather than the entire quarter that is of interest. If the length and width of a field are known fairly accurately, they can be converted using the following factors:

1 foot = 0.305 m  
1 rod = 5 m  
1 chain = 20 m  
1/8 mile = 200 m  
1/4 mile = 400 m

Example: A field 1/2 mile long by 40 rods wide is 800 m by 200 m. The area is: 800 times 200 divided by 10 000 or 16 ha.

Fields that have a corner cut off require a little more calculation. The area of the missing corner is 1/2 the base times the height or 1/2 x 150 x 200 or 15 000 m<sup>2</sup>, which is 1.5 ha. The remaining field area is therefore 16-1.5 or 14.5 ha.

If the number of acres in a field is known quite accurately, the area in hectares can be obtained by multiplying by 0.4.

Example: Field of 65 acres  
65 x 0.4 = 26 ha

A farm plan showing the dimensions and areas of all the fields would be a useful reference for planning farm operations. If these are not known they can be obtained by direct measurement with a tape or surveyor's wheel or by scaling from a large scale aerial photo.

No physical changes to fields or

equipment are required to use the metric system for land measurement. It is simply a matter of expressing existing lengths and widths in metres, and areas in hectares. No resurveying is needed, no roads need to be moved, and legal land descriptions (quarter, section, township, range) remain unchanged. All plans for registration at the Land Titles Offices in B.C., Alberta, and Saskatchewan are required to be in metric units.

The Manitoba Land Titles Office is accepting plans in metric or Imperial units, and the city of Winnipeg has required all their plans to be done in metric since 1979-11-01. Where previous surveys were done in other than metric units, straightforward mathematical conversions are made at the land titles office.

## Most U.S. gas sales in litres by 1982

WASHINGTON - Most gasoline stations in the United States will sell in litres instead of gallons by the end of 1982, the head of the U.S. Metric Board said recently.

Malcolm O'Hagan said a survey by the board showed that 8 000 of the 173 000 filling stations in the U.S. already sell gas by the litre. All of Puerto Rico's 1 400 stations have switched to litre sales.

O'Hagan expects more stations to shift to metric pricing as a result of station owners' converting pumps to show higher prices.

Switching to prices a litre is cheaper than installing a pump computer to show the current prices, which now exceed \$1.00 a gallon, he said. Many gasoline pumps are not equipped to calculate prices over \$1.00 a gallon.

# Home economist receives top CHEA honour award



Wendy Sanford, leading Canadian home economist and metric advocate receives the top honour award of the Canadian Home Economics Association (CHEA) from Dr. Elizabeth Feniak (1), past-president. On the right is Metric Commission Canada Commissioner Betty Robinson. The CHEA has granted the award only 15 times since its inception in 1950.

A pioneer in putting metric "on the map" for both professional home economists and consumers has received a top honour award of the Canadian Home Economics Association (CHEA).

Wendy Sanford, actively involved in the home economics profession for twenty years, received the award at the CHEA's annual convention in Saskatoon in July.

Chairman of MCC Sector 9.50 (Consumer, Home Economics and Retail Trade) from 1975 to 1979, Wendy Sanford "created a strong awareness of CHEA to manufacturers and industry representatives involved in all aspects of metric conversion" the CHEA said. During the same period she was chairman of the CHEA metric committee, being instrumental in seeing that an article on metric conversion appeared in almost every issue of the CHEA journal.

Many achievements under Wendy Sanford's chairmanship of

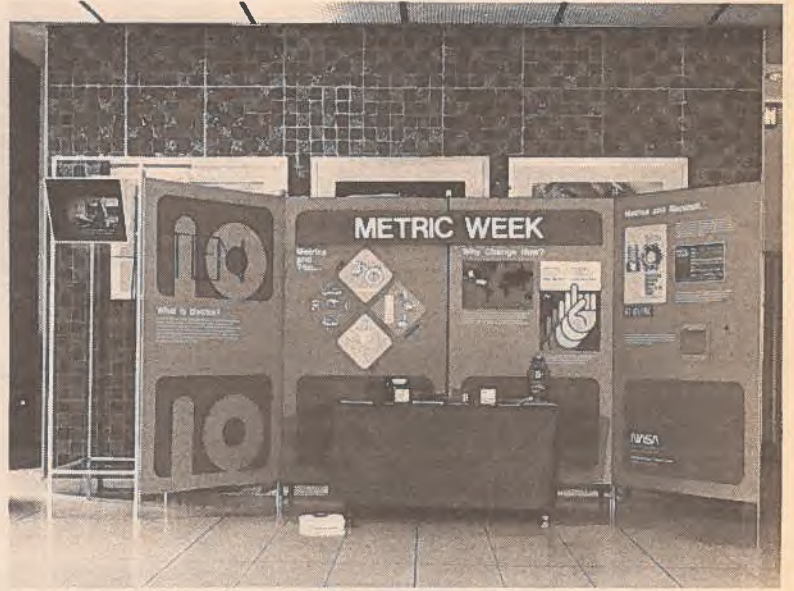
Sector 9.50 dealt with recipes. A national standard for Canada was developed for cooking measures. The liaison with the U.S. was such that they adopted the same size measures. A *Guide for metric cookware/bakeware* was published, in addition to style guides for metric recipes, oven temperatures, cooking thermometers, load sizes for washers and dryers, safe food temperatures, appliance temperature control knobs and others.

"While Wendy herself would deny that she personally developed and produced these papers, there is no doubt that she was the driving force, the motivator who drew the right people together and who had the foresight to know what the needs would be and ensure that the appropriate information was developed to meet those needs" said Joanne Bennett, A/Director, MCC Industry and Services plans in a supporting statement.

An active member of the Toronto Home Economics Association (THEA), Ms Sanford has actively encouraged THEA members to become involved in metric conversion both personally and professionally. She has accomplished this by her input and participation in all the metric programs and newsletter articles sponsored by THEA.

Besides recipes, through Wendy Sanford members of CHEA have participated with industry in the decision on units to be used and approaches to be taken in the fields of textiles, home furnishings and apparel. But it will probably be with recipes that she will remain most closely identified, for it was in 1978 that, after much preliminary groundwork, a comprehensive national campaign was launched, starting with food editors. And without Wendy Sanford, the CHEA's recently published metric cookbook would still be on the drawing boards.

## NASA metric display at Univ. of Alabama



During Metric Week in the U.S.A. (80-05-05/09), the National Aeronautics and Space Association (NASA), through its local authority the Marshall Space Flight Centre in Huntsville, Alabama, sponsored a metric display at the University of Alabama in Huntsville. Featured prominently in the display, held in the lobby of the main Administration building was the MCC poster "Think about it". The Marshall Space Flight Centre has been involved in various space accomplishments, the most recent being the Spacelab development program. The Centre is also NASA's head-office for metric conversion public affairs activities.

## Quebec program helps small business adapt

The Quebec government operates a service primarily for small and medium-sized business providing information relating to the metric system.

This program, drawn up in conjunction with Metric Commission Canada, is directed by the Quebec Industrial Research Centre (CRIQ). It provides for the channelling and distribution of appropriate information to Quebec businesses and organizations involved in the process of conversion to the SI.

As well as obtaining assistance from Metric Commission Canada, the CRIQ is helped by various organizations already involved in conversion to metric: e.g. the Bureau de Normalisation du

Québec, the Standards Council of Canada and the Canadian Government Specifications Board.

Quebec manufacturers experiencing difficulty in converting to the SI in their plants are encouraged to contact the CRIQ and its conversion assistance program team. Upon request, the Centre supplies without charge an on-the-spot investigation and evaluation of the problem, planning activities, help in personnel training, and advice on information distribution.

For more information write:

CRIQ  
333 rue Franquet  
C.P. 9038 Sainte-Foy  
Quebec, G1V 4C7

# Metric and the construction industry

by Stanley G. Love, Manager, Technical Services Canadian Gypsum Company Ltd.

Adoption of a standard universal system of measurement implies complete adoption, that is to say, utilization of the system in its entirety and for all purposes. To accept parts of it for some applications yet retain parts of the old system for other applications, results in virtually the same hodgepodge one had at the beginning.

Unfortunately, there is no possible way in which conversion can be accomplished instantaneously nor simultaneously throughout all segments of our society. In the construction industry we have passed through the phases of investigation, planning and scheduling. We have begun the final phase of implementation — the most difficult of all. It is the most difficult because it affects the most people in their everyday work. It is the stage most susceptible to emotion, inaction, and innate resistance to change.

Regrettably, implementation is proceeding at a snail's pace.

To clarify a point, metric construction means not merely the use of metric units, but also that design and construction utilize the basic metric building module of 100 mm as a replacement for the 4 inch module. This in turn means that the customary 16" framing spacing becomes 400 mm, and 24" spacing becomes 600 mm. Carrying this further, it means that rigid panels which have to fit such framing spacings should be designed accordingly. In other words, standard widths and lengths should be multiples of 400 and/or 600 mm. For example, gypsum panels should be 1200 mm wide, and lengths should be restricted to choices of 2400, 2800, 3000, 3200, 3600, 4000 and 4200 mm. In all cases these dimensions are multiples of 400 and/or 600 mm within the range of the manufacturing process.

Effective implementation of metric in construction requires action in concert by suppliers, specifiers and users. Inaction, by

any one of these three, delays the start and prolongs the transition.

No one can be expected to specify or use material which is non-existent. Thus metric construction requires that manufacturers take the initiative. This they have done and metric sized products critical to metric modular design such as gypsum panels and plywood are readily available in the marketplace. Other materials, more or less critical, are also readily available; for example, concrete block, brick, ceiling grid systems, steel door assemblies, recessed lighting fixtures, and so on. Of course, many materials can be used with impunity in metric or non-metric designs. In general, manufacturers have done their part by providing necessary metric products and literature. *The principal driving force for metric conversion in construction must now come from specifiers and users. Architects and builders are in a key position to bring progressive thinking and action to bear on the problem.* Concerted action is needed now if we are to avoid

senseless cost penalties, inordinate delay, and chaotic supply and service conditions. A quick and orderly transition to metric conversion is beneficial to all.

Metric conversion can be

delayed, and its implementation can be botched. But, in the long run it is inevitable and unstoppable because it is in the self-interest of all nations participating in a world society.

## SI used in Quebec road construction

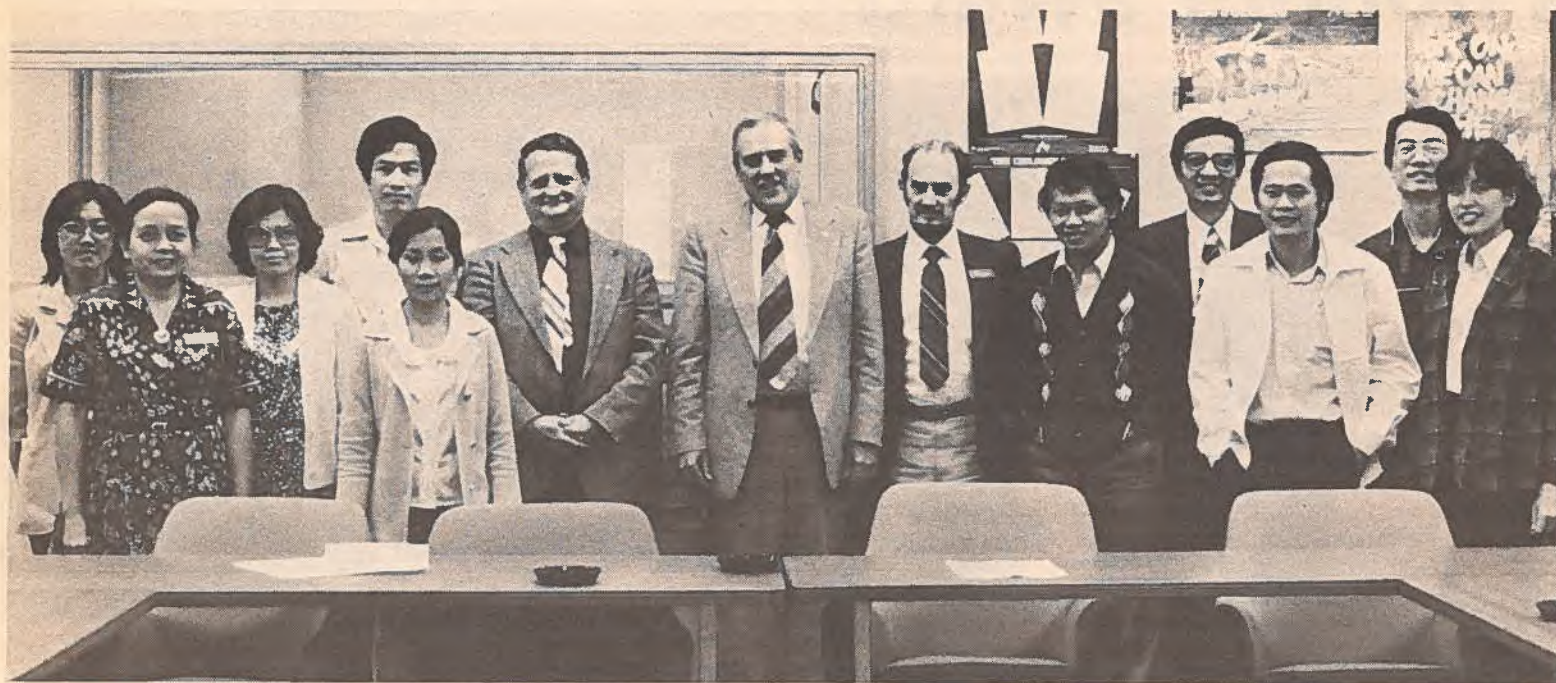
All new road construction projects of the Quebec Transport Department, including all surveying and paving operations, are now planned using the international system of units.

A first experience using SI was recently undertaken by the Department in the Beauce region. In this semi-urban environment, metric usage was employed in the deforestation, excavation, graveling and paving of a two way undivided road of 3.3 km. The first

step was the survey using SI units. New instruments such as four metre surveyor's rods (graduated in metres and centimetres), standardized 20 m chains and 30 m measuring tapes were employed.

Needless to say, the SI plan was drawn on a new squared paper, now approved for Canadian wide usage. A survey of the persons involved in this pilot-project indicated that everyone agreed it was easy to work with SI, although a period of adaptation is required.

# Standards Council seminar



Key officers of standards' organizations in five south-east Asian countries visited Metric Commission Canada offices in June. Seen here (l to r) are M. Mohamad of the Standards and Industrial Research Institute of Malaysia, S. Djaprie, Lembaga Ilmu Pengetahuan, Indonesia, A.J. (Lily) Mortera, the Philippines Bureau of Standards, S. Harinasut, Thai Industrial Standards Institute, E.L. Griarte, Philippines, V.J. Pelisek, A/Director Information, MCC, P.C. Boire, Executive Director MCC, Philip Preston, consultant to the Standards Council of Canada, A.H. Soeroso, Indonesia, P.W. Lum, Malaysia, P. Sanyadechakul, Thailand, P.K. Chua, Singapore Industrial Standards & Research Institute, L. Kuan, Singapore.

The Standards Council of Canada (SCC), in association with the Industrial Co-operation Division of the Canadian International Development Agency (CIDA) recently hosted an intensive month-long training seminar on industrial standardization for representatives from five south-east Asian countries.

The seminar, held from 1980-05-14 to 1980-06-12, was designed specifically for the 10 participants representing the national standards organizations in Indonesia,

Malaysia, the Philippines, Singapore and Thailand.

The efficient use of standardization is a practical and useful means of aiding economic growth. The SCC/CIDA seminar focused on the practical aspects of standards work, and concentrated on showing the participants how Canada's independent standards-writing organizations work together with government departments, industry and consumer groups, to further the national economy.

At the same time, it is recog-

nized that such courses are an effective means of introducing the national standards and industrial capabilities of the host country to those nations which are in the process of fashioning their own standards organizations and standards. The standards bodies of the nations represented at the seminar are in various stages of development. All of the participants are in managerial positions in their home organizations. In presenting an uniquely Canadian example the SCC/CIDA seminar has significant implications for

reciprocal economic and trade benefits.

Standards studies were in the areas of energy conservation, oil and gas pipeline transportation systems, thermal electric power generation and electric power distribution. Instruction centered around the case study of specific Canadian technical standards, showing why and how they were initiated, how they were written, the methods used to verify the requirements and how they were applied at the shop floor or product level.

## New publication lists 80 metric products

The first number of the *Metric Construction Products File* is now off the presses as a completely bilingual publication. It lists over 80 metric products for the construction industry produced by 14 manufacturing companies located from Halifax to Vancouver, and more than 80 suppliers. In addition to alphabetical indexes in English and French, products are indexed in the divisions of Masterformat and Répertoire Normatif.

While the first number has been delayed for a couple of months, the remaining three numbers of Volume one are scheduled for completion before the end of the year.

Letters to the editor of the *Products File* have been very encouraging in their confirmation of the potential value of the publication. The acceptance of metric in the construction industry is indeed widespread, with the most enthusiastic activity being in the western provinces.

The annual subscription to the *File* is \$25.00; twenty or more subscriptions to the same address are \$22.50 each. Enquires should be sent to the Metric Construction Products File, School of Architecture, University of Toronto, M5S 1A1.

All listings in the *File* are made without charge to the manufacturer or their suppliers; manufacturers are requested to submit metric product information to the editor.

# Canada develops a new system of alcoholometry

by T.S. Vanalstine and J.B. Kovar  
Laboratory and Scientific Services  
Revenue Canada  
Customs and Excise

A new system of alcoholometry based on metric units has been developed by the Government of Canada in line with the Canadian metric conversion program.

Under this new Canadian system, the alcoholic strength of a spirit is expressed as the percentage of absolute ethyl alcohol in the total volume of the spirit; consequently, it will be more readily understood by the general public than the present "proof" system.

The new system is based on an approved international recommendation developed by OIML (International Organization of Legal Metrology).

### Oiml international system

The fact that over the years various nations have evolved a variety of different methods for measuring the strength of water/alcohol mixtures and a variety of different ways for expressing it has been a source of misunderstanding and difficulty in international commerce. To overcome this problem, the OIML whose membership includes most of the world's major trading nations (U.S., Japan, EEC and U.S.S.R.), published in 1973 details of a new internationally approved system of alcoholometry.

A significant feature of the new OIML system is an algebraic formula to be used as the basis for calculating alcoholometric tables. In effect, development of the formula actually prepared the way for the creation of truly harmonized systems of alcoholometry to replace the differing national systems being used today. Individual nations now have an opportunity to develop practical systems, suited to their own needs, secure in the knowledge that such systems and accompanying tables will harmonize with all others based on the OIML system.

### A system whose time has come

A White Paper on metric conversion, issued by the Government of Canada in 1970, outlined a policy for the eventual adoption by the nation of a "single coherent measurement system based on metric units".

It soon became apparent that metric conversion of the existing "proof" system of alcoholometry posed a considerable problem. A proof gallon system does not lend itself, in practical terms, to volumes expressed in metric units; furthermore, it was discovered that no country using metric units also used a "proof" system of alcoholometry.

The timely development of the OIML's internationally approved system opened the way for metric conversion of Canadian fiscal alcoholometry.

During 1977, the Laboratory and Scientific Services Division of Revenue Canada, Customs and Excise was charged with the responsibility for designing a new metric system of alcoholometry based on OIML recommendations and suited to Canadian legislative requirements.

From the outset a project team determined that the new Canadian system must meet the following conditions:

- satisfy existing Canadian legislative requirements;
- harmonize with other systems based on OIML recommendations;
- maintain accuracy over a wide temperature range (-20°C to 40°C);
- closely parallel the existing proof gallon system; and
- must be simple to use and easy to understand.

Early in 1979 the project team was able to report that all design criteria had been met and the new system was complete.

### The new Canadian system of alcoholometry

The new Canadian system of alcoholometry has been developed in accordance with the principles outlined in International Recommendation No. 22 of OIML approved in 1972 by the Fourth International conference of legal metrology.

The system has been specifically designed to provide for the fiscal assessment of spirits at a specified rate per litre of absolute ethyl alcohol at a standard reference temperature of 20°C. Also, it provides for the determination of these taxable quantities to be carried out via either of the following two procedures 1) mass/density; and 2) volume/density.

These two procedures are designed to satisfy existing Canadian legislative requirements.

A book of Canadian alcoholometric tables forms a fundamental component of the new system in that all necessary information is presented in the form of unique factors identified by the symbols A, B and C. The tables span a temperature range from -20°C to 40°C in 0.5°C steps, thereby ensuring viability of the system under widely varying climatic conditions.

Access to the tables is gained by means of two instrument readings, viz: hydrometer reading (density); and thermometer reading (temperature). Table pages are identified by temperature indications; and factors corresponding to hydrometer indications are found in adjoining columns under the headings A, B and C. The only calculations necessary to achieve required results for both operational and fiscal purposes are simple multiplications.

Further information about the new Canadian system of alcoholometry may be obtained

from: Laboratory and Scientific Services Division, Revenue Canada, Customs and Excise, Ottawa, Ontario, K1A 0L5, Tel.: (613) 998-9155.

### We were wrong

The *Metric Monitor* published an erroneous definition of soft conversion on page 4 of the June issue. The correct definition should read:

Soft conversion means the replacement of a numerical value expressed in non-metric units by a numerical value expressed in metric units which does not result in physical changes outside the limits permitted by former measurement tolerances.

The definition was given correctly in the French text.

### Apology

Our apologies to Willis Johnson, president of the National Federation of Independent Business and Louis Polk, chairman of the U.S. Metric Board, for transposing their names on a front page photograph of the June issue of the *Metric Monitor*.

## Regina office answers queries

R.S. Reid, Queen's Printer for the Province of Saskatchewan, has been the acting coordinator of Saskatchewan's metric information centre in Regina since September 1979. Mr. Reid has been Queen's Printer since September 1972 and prior to receiving that appointment was director for a year of the Information Services Branch in the Department of the Executive Council.

Previously Mr. Reid was an editor for six years of the *Union Farmer*, a monthly farm journal and had also spent six years as editor and publisher of the *Kindersley Clarion* in west-central Saskatchewan.

Inquiries at the Metric Information Office have not been heavy, Mr. Reid says, averaging one or two per week since his appointment. Requests come often from cabinet ministers seeking answers to questions received from their constituents regarding the metric conversion program.

Metric conversion information centres operate in seven provinces and two territories under a cost



R.S. Reid

sharing agreement between federal and provincial governments. Services are provided to a wide variety of publics, provincial and municipal agencies, businesses, trade associations and consumer associations.

The Saskatchewan metric information office address is: 14th floor, Avord Tower, 2002 Victoria avenue, Regina, Sask. S4P 0R7. (Tel. 565-6531).

## MCC warehouse very busy place



Tens of thousands of kilograms of metric literature and supplies are mailed out annually from Metric Commission Canada's central supply warehouse in Ottawa. In charge of the operation is Jean-Marie Godard, seen here preparing a packet of posters.

## Fishing and fish products

The fishing industry in Canada, so important to those who work in our Atlantic and Pacific coastal regions, is estimated to have landed 1 399 509 t (tonnes) of fish in 1979. The landed value was about \$866 939 000 and after processing, the marketed value of the catch was worth approximately \$1.713 billion.

Over 77% of this product was exported in 1979, with a value of \$1.323 billion. Over 50% of the exports went to countries that use only the metric system, or are well on in converting to metric as in the case of the United Kingdom.

In total Canada ships fish and fish products to about 95 countries

each year. Metric conversion of the fishing industry in Canada will help fishermen keep their position

as a major exporter to these countries. Markets for Canadian fisheries products are now

expanding to all areas of the world where the metric system is the standard.

	Value of Exports in Million \$	% of Export Value
Japan	255	19.3
France	82	6.2
United Kingdom	59	4.5
West Germany	56	4.2
Sweden	26	4.2
Belgium/Luxembourg	26	2.
Denmark	18	1.4
Netherlands	17	1.3
Italy	16	1.2
Others	114	8.2
Total exports to metric countries	669	50.7

## Steel pipe executive lauds metric

TORONTO — Bill Porter, general manager of the Corrugated Steel Pipe Institute (CSPI), admits he was "one of the biggest skeptics around" in the early days of the metric conversion program.

Now, six years along the road to metric, he is convinced "metric conversion is and will be in the future a good thing for our industry."

One of the consequences of changing to metric was to give the industry a more rational product line, Porter told the CSPI annual meeting recently.

In addition, the conversion program launched by the institute resulted in increased awareness of corrugated steel pipe among potential users. "It was a golden opportunity to increase the knowledge of our product," he said.

His only concern now is that the United States, after early plans to follow Canada's conversion timetable, seems to have put its conversion program in neutral.

In Canada, he said, the various provincial authorities have been moving on metric conversion at different speeds.

The federal government is well along and, in general, civic agencies are lagging behind provincial agencies, he said.

Newfoundland has a well-advanced metric program, with metric specifications and some metric products available.

Nova Scotia, he said, has shown some interest but has neither

metric specifications nor products.

New Brunswick meanwhile, is working on metric specifications.

Quebec is a large success story, with metric conversion well advanced. There has been some difficulty with the two main specifying agencies in the province using different specifications, one specifying maintenance requirements and the other construction requirements, he said. The institute is also rushing to complete a French-language version of its CSPI-501 specification.

Ontario has also adopted the metric specification 501 but the full range of products has not been accepted. Some tenders are being written in metric, but the province has announced it won't force contractors to use metric standards, Porter said. However, he added, tenders are being written so that permissible substitutions favor metric products.

Manitoba remains "the major problem" for metric conversion, he said. The province is still "insisting" on diameters that are now no longer standard, but some metric diameters are beginning to be ordered, he said.

Saskatchewan has issued some metric tenders. Alberta and British Columbia are both well along.

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## Canadian fisheries products exports

### To the U.S.A.

(1)	(2)	(3)	(4)	(5)
Year	Tonnes	\$ (000 Can)	Total of all fish product exports (\$) to all countries	% Exports to U.S.A. of all fish products (\$) to all countries
1979	283 291	653 952	1 323 289	49.4
1978	269 434	557 485	1 134 233	49.2
1977	242 231	423 660	815 721	51.9
1976	237 859	357 964	600 516	59.6
1975	209 831	288 949	461 013	62.7
1974	191 411	263 985	436 685	60.5
1973	247 861	294 066	498 706	58.9
1972	230 607	229 670	350 420	65.5
1971	251 972	201 405	295 030	68.3
1970	292 123	202 316	280 022	72.3

(Continued on page 8)

### REMINDER!

The *Metric Guide* published by the Council of Ministers of Education, Canada, is an excellent informational publication. Its explanations are arranged for different levels of technicality and are enlivened by

an abundance of examples and imaginative illustrations. Designed originally for teachers, it is essentially a self-teaching tool for all aspects of everyday life.

The *Metric Guide* is available for \$3.00 at:

Publications Sales  
The Ontario Institute for Studies in Education  
252 Bloor West  
Toronto, Ontario  
M5S 1V6

# Fishing and fish products (continued from page 7)

## To the EEC

(1) Year	(2) Tonnes	(3) \$ (000 Can)	(4) Total of all fish product exports (\$) to all countries	(5) % Exports to EEC of all fish products (\$) to all countries
1979	99 940	275 339	1 323 289	20,8
1978	104 344	224 155	1 134 233	19,8
1977	97 446	169 678	815 721	20,8
1976	58 063	99 588	600 516	16,6
1975	33 159	81 476	461 013	17,7
1974	26 600	82 078	436 685	18,8
1973	43 417	102 050	498 706	20,5
1972	42 628	61 932	350 420	17,7
1971	27 091	22 605	295 030	7,7
1970	48 533	41 086	280 022	14,7

## To Japan

Year	Tonnes	\$ (000 Can)	Total of all fish product exports (\$) to all countries	% Exports to Japan of all fish products (\$) to all countries
1979	48 921	254 565	1 323 289	19,2
1978	59 560	245 946	1 134 233	21,7
1977	48 826	143 050	815 721	17,5
1976	20 164	77 509	600 516	12,9
1975	14 114	39 211	461 013	8,5
1974	9 872	40 165	436 685	9,2
1973	17 012	57 147	498 706	11,5
1972	11 688	25 285	350 420	7,2
1971	8 491	7 985	295 030	2,7
1970	1 505	4 493	280 022	1,6

## Other

Year	Tonnes	\$ (000 Can)	Total of all fish product exports (\$) to all countries	% Exports all fish products (\$) to all countries
1979	73 220	139 433	1 323 289	10,5
1978	69 704	106 647	1 134 233	9,4
1977	59 722	79 333	815 721	9,7
1976	49 906	65 455	600 516	10,9
1975	22 230	51 377	461 013	11,1
1974	20 080	50 457	436 685	11,6
1973	26 706	45 443	498 706	9,1
1972	24 804	33 533	350 420	9,6
1971	47 400	63 035	295 030	21,4
1970	19 508	32 127	280 022	11,5

## Around the world with metric (from page 2)

Industry is ready to convert to metric measurement but it is showing some reserve pending a positive commitment and orders from countries to which Hong Kong exports its products. The progress of metric conversion in this sector of the national economy depends largely on the position of the United States of America, Hong Kong's main trading partner.

In conclusion, the government is heading for metric conversion but does not expect to make it mandatory. As for SI, there is no legal barrier to its adoption: each new law is established according to SI units through amendments to present legislation.

### Malaysia

The act passed in 1972 adopting metric measurement (SI) provides for a ten-year transition period.

Since 1975, conversion has been achieved or is progressing well in a number of private and public sectors of the economy: postal services (1975), meteorology (1976), customs and excise (1978), railways and ports (1978), petroleum and lubricant industry

(1977), retail sale in supermarkets (1977), prepackaged goods. Conversion is expected to end in 1980-1981 in various other sectors, including textiles, industry, construction and retail trades.

With the considerable progress made until now, it is reasonable to hope that metric conversion will be completed by the end of 1981.

### Singapore

Metric policy adopted 1971-02-15 (date at which the Metrication Act of 1970 came into effect) is being actively implemented.

The conversion program includes three phases: the first involves the public sector, the second, the manufacturing and industrial sectors and the third, the retail trades sector.

The first phase was completed in 1973. In the second phase, conversion is completed in more than 75% of industries; further progress depends to a large extent on outside influence since Singapore's production is largely export-oriented. Efforts are now being concentrated on the third phase of the program.

Since 1975, significant progress has been achieved in the building

industry, real estate transactions and shipbuilding (more than 90% metric except for oil drilling equipment). Other programs are being conducted (civil aeronautical, construction, fire equipment, ball bearings, air conditioners, refrigerators).

Most prepackaged comestibles and non-comestibles, as well as a large part of retail merchandise, are now sold in metric units. In 1974-07, all large supermarkets voluntarily adopted metric measurement.

However, total metric conversion in the retail trades is not possible without the cooperation of the consumer. As in other countries, a widespread information campaign is being conducted to urge the general public to use metric units in its everyday life.

Until now, metric conversion has remained voluntary. However, since 1976, all retail purchase orders filled out in metric units cannot be legally refused, subject to a fine.

Following an Order published in 1979-07, the retail sale of certain prepackaged products must be made according to prescribed metric quantities.

SI has been adopted by the National Standards Laboratory.

## Upcoming Meetings

DATE	COMMITTEE	PLACE
80-09-24	Sector 7.30 — Leather (footwear)	Montreal
80-09-25	Sector 8.30 — Furniture and fixtures	Toronto
80-09-26	Sector 8.20 — Wood	Ottawa
80-09-30	Sub-committee 7.42 — Golf equipment	Ottawa
80-10-01	Sector 1.20 — Working group on Tariffs	Toronto
80-10-02	Sectors 2.10/2.11 — Iron & steel mills & foundries; Fastener industry	Toronto
80-10-07	Sector 7.41 — Jewellery	Toronto
80-10-08	Steering committee 62	Ottawa
80-10-09/10	Sector 10.04 — Universities & colleges	Halifax
80-10-14	Sector 7.20 — Clothing	Montreal
80-10-15	Sector 62.07 — Biscuits	Montreal
80-10-15	Sub-committee 7.42 — Bicycles & accessories	Montreal
80-10-21	Sector 2.28 — Wire and wire products	Toronto
80-10-21/22	Sector 10.03 — Post-secondary non-university education	Quebec, P.Q.
80-10-21	Sector 9.21 — Amusement & recreation (sports)	Ottawa
80-10-23	Sub-committee 62.24 — Edible nuts	Vancouver
80-10-23	Sector 1.03 — Water transport	Vancouver
80-10-28	Steering committee 7	Toronto
80-10-28	Sub-committee 62.24 — Dry soup mixes	Toronto
80-11-06	Sector 2.07 — Shipbuilding & ship repairing	Toronto
80-11-06	Sector 9.30 — Services to business management	Toronto
80-10-30	Steering committee 10	Winnipeg
80-11-06	Sub-committee 62.23 — Chocolate drinks & cocoa powder	Toronto

### Metric Commission Canada meetings

80-11-05/06	60th meeting	Hamilton
80-11-18/19	61st meeting	Ottawa

### Other meetings

80-11-04	Advisory Committee on Information Policy (ACIP) meeting	Hamilton
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## Exhibits

80-09-25 to 10-04	Trinity Placentia Fall Fair	Harbour Grace, Nfld.
80-10-20 to 10-04	Plastics '80	Toronto
80-11-01 to 05	Round Up '80	Calgary
80-11-13 to 22	Royal Agricultural Winter Fair	Toronto
80-11-29 to 12-05	MEXabition/Canadian Western Agribition	Regina



## 30 mm

A heavy downpour. Dirt roads will be slippery. Raincoats and umbrellas are in order. You won't need to water the lawn or garden for a few days.

## HUDAC on-site metric handbook still popular

A metric guide for construction workers is still proving popular three years after its publication by the Housing and Urban Development Association of Canada (HUDAC).

The 40 page *On-Site Metric* handbook is often ordered in bulk by builders who then distribute copies to tradesmen on the building site, says Bernard Roth, director of research for HUDAC. But its practical treatment of conversion specifications dealing with such

matters as roofing, painting, masonry and steel make it suitable for use in types of construction other than house building, Roth says.

Copies of the HUDAC booklet may be ordered at \$1.00 each from:

Housing and Urban Development Association of Canada  
15 Toronto St., 10th floor  
Toronto, Ont.  
M5C 2E3.