

**THE
CONCENTRATES
'62 - '63**



annual
publication of the
ore gangee,
geological society,
university of saskatchewan.



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It is with great regret that we have recently learned of the death of John Baker in Tanganyika. He had started developing a small gold mine at Noyega when he died with malaria complications.

Shortly after he graduated in 1936 in Arts Geology John Baker went to Uganda and has been engaged in various operations but mainly mining. On many of his ventures in the eastern part of Africa he was associated with Mel Thompson who graduated from here at the same time. During the second war John joined the R.A.F. and flew on Coastal Patrol. He was badly injured and discharged. For some years he served as Member for the Western Province in the Tanganyika Legislature. John had a great zest for life and made a solid contribution to the development of that part of Africa. Our expression of deep sympathy goes to Mrs. Baker (nee Shirley Brydon) and his family and friends.

NOTICE TO READERS

IMPORTANT!

It is advisable that when using this publication the light be kept low or even off. Information from the printer requires that such precautions be taken to avoid fading and eventual disappearance of the print.

- ed -

ORE GANGUE

1962-63 Executive

President -	A. R. Clark
Secretary -	M. L. Larson
Treasurer -	G. J. Hodgson
Social Director -	J. M. Park
Third Year Engineering Representative -	V. L. Haggard
Third Year Arts Representative -	M. E. Coates
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Assistant -	R. D. Holmes
Typist -	Mrs. L. Sins
Cartoonist -	A. Zypohen

1963-64 Executive

President -	R. J. Berven
Secretary -	W. A. Hogg
Treasurer -	R. H. Johnson

EDITORIAL

As we write this editorial, we look back on two years association with the Ore Gangue. It is without doubt, the best student organization on the campus. We feel, however, that there is some danger of its losing its rank of "student organization". We feel that to prevent this, there must be an increase in interest in the Ore Gangue by the students.

This year we have noticed a lack of enthusiasm on the part of the members. Although this is not evident at the major functions, it shows up in the minor operations of the Gangue.

We feel that more students should have given seminars this year. We do not think that those who did not were any busier than either those who did or those students of previous years, who managed to do so.

Another sign of apathy and probably the most serious is the practise of the Ore Gangue to assume that faculty advice is the LAW. There has been no attempt by the Ore Gangue to question or to act contrary to this advice. We feel that it is unfortunate that such contrary action was not taken in one or two instances this year. We are not saying the advice was bad; we are saying that if the Ore Gangue is to maintain its independence it must make its own decisions. If all new ideas proposed are PRESUMED squelched by "contrary advice" from the faculty, in the future new ideas will not be proposed. Perhaps most of the members do not fully realize the autonomous nature of the Ore Gangue. All decisions of the Ore Gangue can and should be made by the students unless they are contradictory to department regulations. We think that it is the job of the president and his executive to make this clear to all new members by performance, as well as VERBALLY!



Fellow Ore Ganguesters --

Issuing the 1963 Concentrates brings to a close the activities of the Ore Gangue for another year. I want to thank all of you who have assisted in making this year a successful one and extend my best wishes to those people taking over the executive duties next year.

Those of you who are graduating this year will be leaving this University and will want to keep in contact. I suggest that the ideal way to do this is to subscribe to this yearbook. It will not only keep you up to date on the activities of the department and students but also gives the Ore Gangue a means of keeping in touch with you. I imagine those of you who have subscribed are reminded of your own college days while thumbing through these pages.

Best regards to all from the Ore Gangue.

Al Clark
President

Treasurer's Report

The Ore Gangue Treasury maintained a relative equilibrium by starting out with nothing and ending up with nothing. Since the purpose was not to make money, but to give the Ore Gangue members a full \$2.00 worth of educational and social activities, we succeeded.

Ore Gangue Operation

		<u>Dr.</u>	<u>Cr.</u>	<u>Balance</u>
<u>1962</u>				
Sept.	Fifty-five members		68.75	68.75
Oct.	Ore Gangue float	10.89		57.86
	World Series socks		14.70	72.56
Nov.	Fall Banquet		1.10	73.66
Dec.	Ore Gangue Christmas			
	Cards	10.80		
	Less printing ..	<u>12.41</u>	2.61	71.05
<u>1963</u>				
Jan.	Petrology forms		3.30	74.35
Feb.	Loss on Curling Prizes	4.00		70.35
	Flowers for Mrs. Sims	5.25		65.10
Mar.	Spring Banquet	56.33		<u>8.77</u>
			Balance credit	<u>8.77</u>

Concentrates

Cash on hand			259.22
Fifty-five members		41.25	300.47
Subscriptions		16.50	316.97
Jubilee Donations		2.50	319.47
Index Box and cards	5.07		<u>324.40</u>
		Balance	<u>324.40</u>

SOCIAL and SPORTS

Jack Park

Social Activities

Weiner Roast

This well-known fall social function was carried out with great confusion this year. The social director humbly apologizes; but due to the fact that it was his first function, he had a form of stage fright. As a result of the confusion, the weiner roast ended up at the Old Red Barn where a good time was had by all.

Fall Banquet

This year the happy event was held on November 17 at the Saskatoon Golf and Country Club. The evening began with the cocktails and the banquet. The guest speaker of the banquet was the latest addition to the staff, Dr. P. P. Langford. His talk on "The Volcanics of the Western United States", was supplemented by very interesting slides.

The evening was climaxed by a dance which was its usual gay affair. Half-time entertainment was provided by one of the more happy members who has mastered the art of twisting on bars.

Stag

Due to lack of facilities (sob) no stag (sob) was held this year (sob).

Spring Banquet

This year's Spring banquet was undoubtedly one of the most successful ever held. A good measure of its success was due to the guest speaker, Dr. W. B. Swinton, who gave a talk which I am sure lifted the hearts of many of us and made us feel proud to be geologists.

The delicious supper of turkey and strawberry shortcake was followed by a dance which I am sure was enjoyed by everyone.

Sports

This past year the Ore Gangue became prominent in the campus sports circle; more specifically, the hockey circle. The outstanding players skated circles around any opposition placed before them. Had it not been for the fact that one unfortunate game was lost by default, the team would have been the champions of the F-league as they had an impressive record of 3 wins and 2 ties.

An endeavor was made to enter an Ore Gangue team in the field of basketball but lack of players shot down this effort.

The bonspiel was a success as usual. Eight rinks competed for liquid assets. The "A" event winner was Blackburn and his rink B. Hodgson, V. Haggard, and M. Kirby; J. Murray, R. Lorser, B. Pfeffer and R. Klassen captured the "B" event. All in all it was a successful year in sports.



HOME COMING PARADE FLOAT.

- Myles Parsons -

The Home Coming Parade, held on October 6, was featured by a float from the Ore Gangue. Ganguesters accumulated at the Exhibition Stadium on the eve of "Parade" day to erect their version of a stunt float. When finally completed, the float consisted of an oil derrick complete with a "stand" of pipe, an electric pump, several forty-five gallon drums, a "dog house" and other associated equipment. Appropriate humorous signs were displayed in the structure. The activities of the evening included traditional refreshments, the consumption of which was abruptly curtailed by the resounding cry of "Here comes the cops"!!

The following day, as the float coursed its way in the parade, a gush of water representing a well known beverage issued forth from the derrick. A crew of ganguesters representing "roughnecks" and "testers" were on hand to bottle the beverage and immediately to "consume" the same. Related signs included "Demands Exceeds Supply" and "More Testers Wanted". An added attraction was the explosion of a smoke bomb on 2nd Avenue resulting in a screen of great billows of red smoke.

The judges inadvertently neglected to award the Ore Gangue a prize. However, it was generally conceded that efforts put forth were compensated by the good time had by all.

The Ore Gangue expresses thanks to Andy's Transport for supplying transportation for the float, and to Boychuck Lumber, Modern Press, Wright's Rental, and University Drive Service for making available all necessary equipment.







ANRIGHT! WHOSE FEET SMELL?



LET'S SEE... ON THIS ONE WE'LL
WRITE "GREYISH ROCK FOUND
NEAR PEEBLE'S RAVINE OR THEREABOUTS."



O BOY ANOTHER
PACKAGE FROM MOTHER



Fig. 1

EAPOSE -

SUMMER ACTIVITIES OF THE STAFF

J. B. Mawdsley

This year was an interesting one. As President of the Canadian Institute of Mining and Metallurgy I had occasion to visit a score of the Institute's branches from Newfoundland to Vancouver. At nearly all of them I met graduates from here, many of them in very responsible positions. One swing in February and early March started with Winnipeg, Sudbury and Toronto. This took me to the AIME Annual Meeting in New York late in February. From there I flew via Seven Islands to Labrador City with Doctors Ab Moss and Stan Malouf. Ab, of the Iron Ore Company of Canada, is manager of the gigantic Carol Project which will be mining magnetite at the rate of 20,000 tons a day from the southwest corner of Labrador. We picked up en route Larry Trenholme who was heading for the northern part of Quebec, Ungava, to carry out a drilling program. We stopped at the Shafferville open-cut iron operations and were shown around by Stew Stubbins and Peter Almond, respectively Mine Engineer and Development Supervisor. From there Stan and I flew southwest along the height of land to Chibougamau. I had not visited it since 1930 and had mapped there for the Geological Survey of Canada before that. Instead of being just a very interesting mineralized section of Precambrian terrain it is now an important copper-producing area, with all the ease of access and community activities that go with it. From there I drove to Val d'Or, then Noranda, Kirkland Lake and Timmins. At all of these places I met one or more of our graduates which added a good deal to the interest and pleasure of the tour.

On April 25 at the very successful Annual General Meeting in Ottawa the Presidency of the C.I.M. was handed over to Mr. John R. Bradfield, President of Noranda Mines, Ltd. However, the chairmanship of the ad Hoc Committee formed in April 1961 continued till last November 23 when its final recommendations were submitted to the Council of the C.I.M. as an outcome of a broad study of the organization and problems facing the Institute it is hoped to increase the Institute's usefulness in the development of the Canadian mineral industry. As one result of interest to the West is the opening of a Calgary office and the initiation of a quarterly, "The Journal of Petroleum Technology".

Towards the end of June I flew to Uranium City on business to do with the Institute for Northern Studies. Among others I had a pleasant sojourn with J. M. Douglas and J. P. Dunnet, respectively General Manager and Mine Superintendent of the Beaver Lodge Operation, Eldorado Mining and Refining Limited.

The rest of the summer and fall was spent in Saskatoon with the exception of trips on University or C.I.M. business. I am finding that "paper pushing" is taking an increasingly large proportion of my time.

Two events of my 1962 summer stand out as being worthy of comment. The first was a visit to Eastern Canada in April. April hardly qualifies as summer and Ottawa, where the Canadian Institute of Mining and Metallurgy held its annual meeting was certainly not in summer mood but the chill winds were ameliorated by the warmth and spirit evident amongst the institute members, fostered by the hospitality of equipment and financial companies who had need to dispose of advertising dollars. Chill was not evident in the halls of Chateau Laurier, Dr. Mawdsley being President of the Institute last year the meeting was of significance to Saskatchewan and the Department. Dr. Pyers and I were able to bask in some of the reflected glory and having a room in the Chateau nearly opposite the Presidential suite we were called in to assist the President on various social occasions.

The most enjoyable of all the functions in Ottawa was a dinner arranged by Ore Gangue members at La Touraine. My autographed menu states that it was the First Annual Ore Gangue Dinner, C.I.M.M. Annual Meeting, April 23, 1962. I hope that there may be many other such dinners where Ganguesters of various years can get together at times such as that of the C.I.M.M. Annual Meetings. There are forty signatures of gangue members and their wives on my menu. Thanks go to those who organized the function and who at short notice had been able to get so many together. Dr. Mawdsley and I were presented with tins of fine cut tobacco in restitution for tobacco raids, made by students, on our joint supply in the '30's. In those days we both holed our own and alternately bought tins of tobacco which rapidly became depleted. Having implicit trust in the Gangue of those days we privately blamed one another for being excessive smokers.

In July I visited the Lake Athabasca area and was very happy to see that attractive country again. Although my time was short I was able to spend time in two areas. At Little Gull Lake on the southeast boundary of the William River sand dunes and at Carwell Lake about twenty-five miles south of the William River delta. The north part of Little Gull Lake is marshy and a wonderful breeding ground for gulls, ducks and loons. North of the lake, open dunes stretch most of the way to the Lake Athabasca shore, about three miles north of Little Gull Lake, on the height of land there are gravel plains where the best ventifacts that I know of in the Lake Athabasca area occur. It was an interesting study features, distribution and orientation of the ventifacts that I visited this area. The limestone outcrops of Carwell Lake are most interesting, they are probably Proterozoic and overlie the Athabasca sandstone. However, this is a story that has to be worked out and I hope that some time in the near future a party can map this area and help to solve the problems of this part of the Canadian Shield.

It was with great pleasure that we welcomed two new members to the Departmental staff this session.

Dr. F. F. Langford comes to Saskatchewan after having spent four years on the staff of the University of Kansas. He is a Toronto graduate who went to Queen's for his Master's degree and Princeton for his doctorate. We are thus maintaining our strong Princeton bias originally set by Dr. Mawdsley.

Dr. Langford is not a stranger to Saskatchewan. He lived for a time at Kindersley working for the Imperial Oil Limited.

Dr. K. B. S. Burke joined the staff in November as replacement for Dr. D. H. Hall who left us in the summer of 1962 to take up a position on the Geophysics staff at the University of Manitoba. Dr. Burke's training was at Leeds University where he took his training in Mining Engineering and Doctor's degree in Geophysics. In 1961-63 he was a post-doctoral fellow at Columbia University, New York. Best wishes are extended to Drs. Langford and Burke and their families.

Last year in the Concentrates I made reference to changes in the undergraduate courses involving the Third year Geological Engineering. Changes have been made in the schedule for the Geophysics Option course and Mining Engineering. Petroleum Engineering will in future be given as a diploma course in the Graduate College.

Over the next few years it is expected that the changes will be made in the organization and content of the geological classes and it is our aim to integrate the material more effectively and present it in a more logical way. Members of the staff are giving time and thought to the problem and it is hoped to be able to implement some of these changes in a year or two's time.

Early this session the Canadian Petroleum Association organized a panel of experts to give talks to Engineering students on various aspects of the petroleum industry. The session was a successful one and the Association are proposing to visit the campus again next year. This session the Department has been most fortunate in having a considerable number of visitors who have given talks to the Ore Gangue and to various groups of students. We were particularly pleased to welcome the Director of the Geological Survey here in January. Dr. Harrison addressed the Engineering Colloquium on Survey work in the Arctic. Other visitors included four from the Department of Mineral Resources at Regina, Mr. Don Kent, Drs. Christopher, Jones and Brindle. Talks on the Labrador Iron Ore deposits and the Thompson, Manitoba area were given by Mr. Peter Almond and Mr. T. Podolsky, respectively. Dr. W. E. Swinton of the Royal Ontario Museum was a very welcome visitor to the Department early in March when he gave a talk in the University Series of lectures on the Dinosaurs. He was also guest speaker at the Ore Gangue Spring Banquet. Dr. D. McLaren, Chief Palaeontologist of the Geological Survey of Canada visited us as special lecturer sponsored by the Advisory Committee of Research in the Geological Sciences, and gave a talk on the "Origin of Life and Precambrian Fossils".

We are always pleased to see former graduates visiting the Department. There is a visitors register here, we hope that you will make apoint of signing it when here. Too many have got away without, so please remind us that we want a record of your visit.

A. R. Byers

During the early part of June Mrs Byers and myself motored through southeastern British Columbia as the guests of Consolidated Mining and Smelting Company of Canada, Limited. Visits were made to the Sullivan mine at Kimberley, the Blue Bell mine near Riondel on Kootenay Lake, the H. B. mine near Salmo, and the concentrating and refining plants of the company at Trail. I had the pleasure of seeing Rus Sproul, Geological Engineer, 1946, geologist at the Sullivan mine and George Warning, Hon. B.A. 1939, geologist at the H. B. mine.

In July, we motored to Gananoque in southeastern Ontario via the Trans-Canada Highway for a summer holiday. We made a stopover at Sudbury to visit the Falconbridge and Hardy mines of Falconbridge Nickel Mines Ltd., and to see some of the local geology under the guidance of Peter Potapoff, Geological Engineer, 1950 who is District Geologist for Falconbridge.

Before returning to Saskatoon, I attended a very interesting symposium on Rock Mechanics held at McGill University. On the return trip through northern Ontario a visit was made to the Helen underground mine and the Sir James open pit mine of Algoma Ore Properties at Fawa. Harold Soderlund, Geological Engineer 1950, who is underground mine superintendent kindly showed me around the property.

R. F. Palmer

Preparation for the new course in Mining Engineering limited travel this summer. The only excursion was a visit to Eldorado's Beaverlodge, and Gunnar Mining's operations in the Lake Athabasca area.

These two organizations provided excellent accommodation and facilities for comprehensive tours. During one week in the area, four underground trips, inspection of all surface buildings and equipment, and numerous discussion of mine organization and engineering, were arranged. Tentative plans were made for the spring field trip.

although University work interfered to some extent, the summer in Saskatoon permitted an introduction to golf, and extensive, though amateur efforts in rehabilitating an old house and garden.

(It seems that hard rockers have it pretty soft!!!!!! - Ed.)

L. C. Coleman

The summer of 1962 marked the start of a cooperative program between our department and the Geology Division of the Saskatchewan Research Council with which I expect to be closely associated for a number of years. In recent years the Saskatchewan Research Council under Dr. Smith's direction has been conducting some studies on the relationship of trace metal contents in rocks to known sulphide deposits in the Amisk Lake - Flin Flon area. The interesting results that have been obtained from this work indicated that the study could be profitably extended to other areas if carried out in conjunction with detailed geological mapping.

After consultation between Dr. Byers, Dr. Smith and myself it was decided that the Council would initiate a program of detailed geological mapping combined with systematic sampling for trace metal analysis, in the Hanson Lake area. This area was chosen for a number of reasons. Within it access and rock exposures are both excellent; there are a number of base metal showings of which at least two are probably of economic value; one of the major structural features of the western Precambrian Shield, the Kisseynew lineament, extends across the area; and there are a number of other known features of geologic interest in the area including problems regarding structures, petrological relations and metamorphism.

In June, after completing preparations in Saskatoon I left for the field accompanied by Vern Haggard and Brandt Miller. Our three months work indicate that the choice of area made last spring could not have been better. I have not previously encountered such good exposures of so complex and interesting geological features in any other place that I have worked in Canada. Mapping at a scale of 1" = 500', it is possible to spend time on everything that is of particular interest and the exposures are so good that many of the questions that arise can be answered largely in the field. The results of last summer's work were sufficiently encouraging for the Saskatchewan Research Council to decide to expand the program. This coming summer the field party will include a senior assistant who will use the results of his work in the area as the basis for a Ph.D. thesis which will be done in this department.

I think that there is good reason to believe that our department will, for a number of years, benefit greatly from the Hanson Lake program. Not only will it provide faculty members like myself with an opportunity to keep our geological thinking in good condition but it should also provide an excellent means of attracting, supporting and stimulating graduate students of a superior quality.

(We are very flattered that Dr. Coleman wants US to come back to graduate school!! Ed.)

N. C. Warilaw

In the month of May Dr. Schwerdtner and myself attended a symposium on salt in Cleveland, Ohio, and both presented papers at the meetings there. This was a very worth while venture and brought us many valuable contacts with other workers interested in evaporite rocks.

During the early part of the summer I took an introductory German course at Intercession and continued work in Saskatoon until the beginning of July, when I went on a month's visit to Britain and Germany. In Britain I visited relatives, friends and many familiar places before going on to Germany where I was the guest of Dr. Robert Kühn of the Kaliforschürge Institute. Dr. Kühn is a mineralogist and geochemist who has specialized in studies of evaporite rocks and as well as showing me the work being undertaken in laboratories he arranged an underground visit to see the famous German Zechstein potash sections exposed in a mine. Dr. Schwerdtner, presently working in our department, is one of Dr. Kühn's students.

Introducing - Dr. K. B. S. Burke

Dr. Burke is new to the geological department this year. Dr. Burke graduated from Leeds University in 1958 and then joined the geophysical section of the mining department. He spent most of his time in geophysical surveys connected with mining problems in the hematite region of West Cumberland and the concealed coal fields of Yorkshire. He obtained his Ph.D. in 1961. His thesis topic was "Gravity observations and analysis of results in the concealed coal field of Yorkshire relating to outcrops and other features".

In 1961 he journeyed to North America to join the research staff of Columbia University. While there he worked on problems of transmission of ultrasonic waves and the causing of structural damage to buildings due to seismic waves from blasting.

After a brief sojourn in England he proceeded to the University of Saskatchewan where he is doing his utmost to maintain the prestige of Geophysics.

We trust that Dr. Burke will be successful in his work here and will become an invaluable addition to the department.

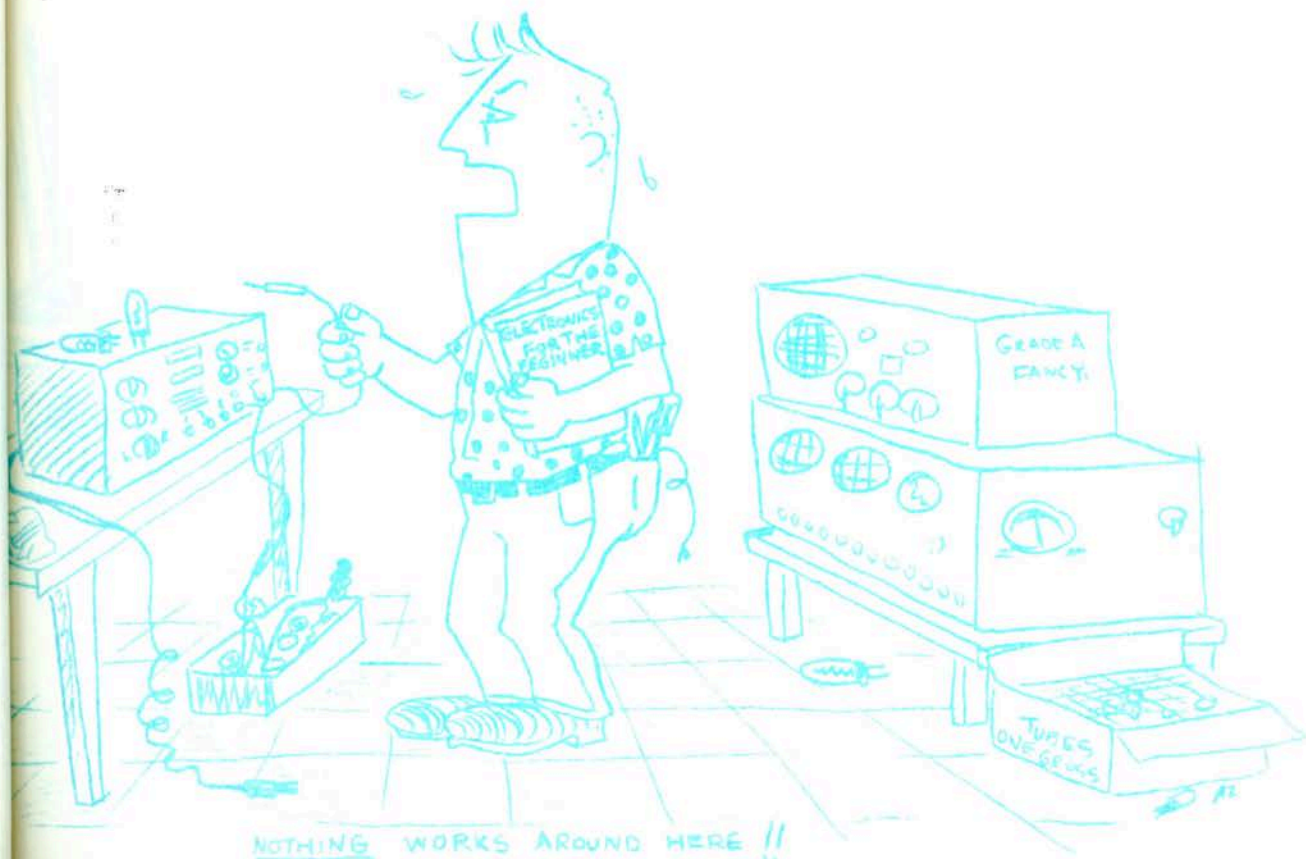
(We trust as well that geologists will give geophysicists their due!!
Ed.)

E. L. Faulkner

This past summer was spent working mostly in the department on somewhat routine work, the separation and analysis of sulphide minerals from the Coronation Mine, Flin Flon area for cobalt and nickel. This work was interrupted only by an all-too-brief field trip to collect more samples and an all-too-lengthy period learning the rudiments of electronic circuitry, the hard way.

My main conclusions from this summer's work are:

1. Fancy electronic equipment is all very well until it goes wrong.
2. When it does, nobody seems to have much more of a clue as to what the trouble is than you do yourself.
3. The designer of the department's vacuum tube voltmeter has a perverted sense of humour; when switched to one particular operation I found that the handle of the probe was connected to the "live" side of the circuit, the voltmeter was reading 600 volts at the time.



Dr. Margaret Steeves

Dr. Steeves had what might be termed a "productive" summer.

As well as having presented a paper entitled "Palynological Contributions to the Interpretation of the Jurassic-Cretaceous Boundary in Saskatchewan" (which is quite a mouthful to come from a person slight in stature) to the International Palynological Conference held at Tucson, Arizona in May, she gave birth to a 9 pound (exactly) baby boy named Timothy here in Saskatoon.

Certainly few if any other on the staff could have performed such a feat! Needless to say, Dr. Steeves has nothing to report in the line of field investigation.



W. O. Kupsch

During the 1962 field season, like in 1961, I was engaged in geological reconnaissance of parts of the Arctic Islands. Although our field party can look back to some solid achievements as far as mapping parts of Ellesmere, Axel Heiberg, and Longhead Islands is concerned, personally I seem to have missed making the headline news with which J. C. Sproule and Associates (the consulting firm for which I worked) provided the national press. I am thinking particularly of two items, one serious, and one humorous.

The serious news concerns the discovery and preliminary investigation of bituminous sands, similar to the famous "Athabaska tar sands" near Marie Bay on western Melville Island. This is indeed an important direct indication for the occurrence of hydrocarbons in the Arctic Islands.

To tell the story about the more humorous, although at the same time rather dangerous, happenings I will quote you parts of a story which appeared in the Calgary Herald on September 7, 1962, where Bob Shields, a daily columnist, relates the following events on page 19:

"Today, a harrowing tale of terror in the far north and how Howie Carmichael bloodied a polar bear's nose.

The story is told by Jim Durkie, chief pilot for J. C. Sproule and Associates, petroleum consultants...

Each summer, J. C. Sproule's associates head about as far north as you can go without getting into Russia to check the petroleum prospects of the arctic Islands.

Thus it was that Howie Carmichael . . . found himself with a companion in a tent one night on King Christian Island.

From King Christian Island to Isachsen 2,000 miles north of Edmonton, where Jim Durkie was currently stationed with a Beaver aeroplane, came an urgent message.

"Very urgent you get to King Christian camp very soonest with rifle. Three polar bears attacked or attacking camp. Not clear but possible damage to helicopter."

Mr. Durkie grabbed his rifle and rushed to the rescue. This, as he subsequently learned, was what had happened:

Mr. Carmichael and his companion were awakened from a sound sleep by a great polar bear trying to get into the tent. His nose poked deeper and deeper into the flap and his hot breath penetrated right through the canvas.

There didn't seem to be much else to do -- Mr. Carmichael hauled back and popped him one on the snout. Blood spurted against the tent and the animal backed off.

Peering out, the two oil men found they were surrounded by three bears. The call for help went out by radio while one of the bears busied himself with wrecking the helicopter.

W. O. Kupsch --

In time, the pair got their flare guns working. The little red flares put the bears to flight, but not before they had torn apart the food cache.

As Jim Durkie points out, these polar bears are dangerous. And there are not many men alive who can say they once clouted one in the snout.

W. G. E. Caldwell

For many years I have devoted the summer months to study of the Devonian rocks in the Northwest Territories, and therefore it made a pleasant change to spend the summer of 1962 in Saskatchewan.

Three weeks were spent mapping the Cretaceous rocks exposed in a segment of the South Saskatchewan River valley to complete a stratigraphic investigation I have been conducting for the Saskatchewan Research Council, and six weeks, in July and August, were spent teaching Geology 101 at summer school. A group of keen students, who responded enthusiastically to both class and field work, made instruction in this class a rewarding experience.

Professor Edmunds often has expressed the view that a summer is not complete without a trip to the mountains -- a view with which I wholeheartedly concur -- and so the summer also included a few days in Alberta, during which my wife and I visited some of the scenic beauty spots in the Rockies.



T. E. W. Hind

The summer just passed was a quiet one for me. During the month of June I worked on a survey of the profitability (or otherwise) of flare-gas collection in Saskatchewan, and this study was, for the most part, carried out in Regina. Apart from this, and a three-week camping holiday in Waterton and Banff National Parks (the weather was kind), I spent the time in Saskatoon.

The manuscript of my book on "Principles of Oil Well Production" was completed and forwarded to McGraw-Hill and is currently undergoing what the publisher terms the "review process". This seems to be an amazingly time-consuming venture, but doubtless my feelings on this point are due to my impatience to see the material in print.

A goodly portion of my time during the summer was devoted to preparing lecture notes for Mathematics 157 as this winter I am teaching the first-year mathematics class to all the first-year engineers.

In view of a decision not to offer Petroleum Engineering at the undergraduate level this year, but rather to put on a general half-class in the phenomenon of fluid flow through porous media for all soft-rock geological engineers - and anyone else who might be interested - it was necessary to ponder and to try to summarize the most important aspects of such a flow system, and then to try to write it up in such a way that the results presented could be readily applied to the ground-water, the petroleum, or the natural-gas industries. Whether this part of my summer's work was a success, the students and I will discover after Christmas.

Introducing - Dr. P. F. Langford

Dr. Langford obtained his bachelor's degree from the University of Toronto. He then worked in the oil industry for part of a year. He says that this work "drove him back to school at Queens". At Queen's he obtained his Master's degree and continued his studies in Princeton where he obtained his Ph.D. As a pastime, while studying at Queen's and Princeton, he worked for the Ontario Department of Mines.

After he obtained his Ph.D. he joined the University of Kansas staff for four years. While there, he worked on the basement rocks of Kansas, and helped prepare a detailed contour map of the Pre-cambrian in Kansas.

He then came to the University of Saskatchewan. While he is not trying to pound some petrology into the heads of the soft-rockers, he is working on the Sudbury area, which was the subject of his Ph.D. thesis.

(Sch. Ten. -- we think the oil industry is pretty good!! Ed.)

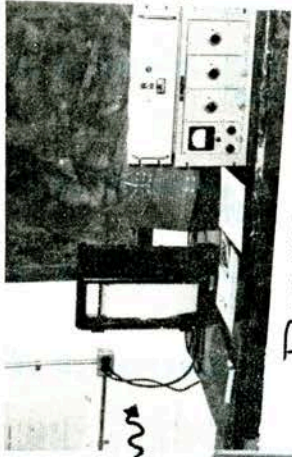


OUR PRES!





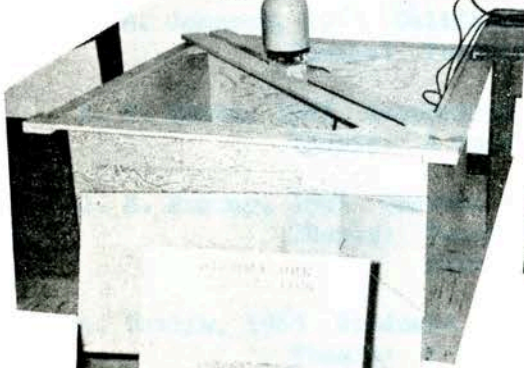
IN OUR SHEW



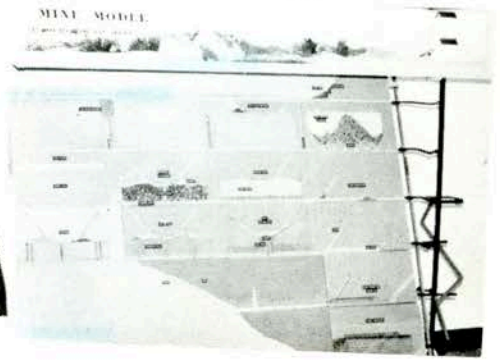
RIGHT HERE



A FLOATING FLOAT-BUILDER!



?



GRADUATING CLASS

Engineering

- R. J. Berven, 1963 (Summer) Superior Oil Company,
1963 Graduate School
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Good Luck
Everybody!

Principles of Fluviology

- Glen Thomas -

Introduction

Fluviology is certainly more prominent than structural geology or lithology studies in the search for oil. Although the ideas involved are extremely classical and at times hard to visualize, one must not overlook the success attained with these principles in the past. A statistical analysis of successful methods used in finding major oil fields reveals that fluviology indeed has a formidable lead over its rivals. The author felt compelled to expose some of these principles for the sake of knowledge.

Hydrocarbon entrapment: The Pool Theory

Some basic concepts of oil accumulation must first be recognized. Several experiments can be performed in the laboratory which prove that oil collects in pools. This theory was first established in 1961 in a Geophysics 312a lab, since removed from the course because it was too advanced for undergraduates. A study of recent seismic data across the Turner Valley field revealed a large syncline in which the oil had pooled. The original error of calling it an anticline was traced to using up-dip shooting techniques for down-dip traverses, causing an exact reversal of dip.

Another series of experiments shows the possibility of oil accumulation in cracks. The capillary forces exerted on the oil will draw it into these linear traps and prevent its escape. Faults employ this same mechanism deep in the earth's crust.

Surface expression

In many quarters of the industry it is felt that deep crustal structure is expressed on the present day surface. For instance, a large synclinal basin would be expressed as a topographic low, and a basement fault would be revealed by a linear valley. Referring to the pool theory again, water must collect in these lows on the surface and thus reveal hitherto unseen structures favourable to oil accumulation.

Now this has several practical applications for the desiring oil man. Field work will become a thing of the past for the soft-rocker! All he has to do is to sit in his living room and peruse aerial photos, outlining the water bodies and bidding on the mineral rights under them.

The real slap comes when we consider the utter feasibility of these theories! Take some of these examples: The Dead Sea, Gulf Coast, Lake Erie, and Alaskan off-shore fields, to mention only a few.

Possibly the greatest defect for the out-dated anticline theory lies in the fact that the extensive drilling program undertaken over the Gadsby anticline has failed to yield a single producer. Here where conditions are so favourable (according to anticlinists) and sediments are so abundant, it seems a dreadful shame that the synclinal structure is not present.

Principles of Fluviology

- Glen "Homer" -

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Conclusions

Fluviology represents a bold new advance in the earth science industry. One can only hope that Geophysics 312a will be restored to the course as a continual challenge to the minds of keen soft-rockers.

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P. Lawliw

The quest to find a direct method of prospecting for oil led to an investigation of the sociological structure of the society of electrons. The studies of such well-remembered men as Rutherford, Fermi, and Bohr, not to mention countless others, were carefully reviewed. From this compiled information, it was hoped that a suitable method of detecting and identifying the moment to moment escapades of the electrons in petroleum atoms would evolve. The following is a condensed abstract of the findings of this research.

It was noted at an early stage that two very close parallels to human relationships were present. First there is the tendency to preserve stability, especially on the family level. Secondly, there is the tendency towards segregation from undesirable individuals. The second point is most important for our purposes.

The only way of detecting petroleum directly is to measure the response of electron clans (molecules) towards another particle which we introduce. However, the ones we desire to detect are deeply buried beneath others, which are extremely closely related. This poses the problem, for the particles we send to visit the electrons must be able to move about this heavily populated region. What particle will interact selectively only with petroleum molecules and then return?

Photons are the only choice. Firstly, they have perfected the state of bachelorhood. Secondly, each photon of a particular energy will excite only certain particular electrons. One could naturally be led to assume that once enough photons, characterizing many different energies, had returned and were detected, the presence of petroleum molecules could be deduced.

However, this is not the case. Whether the photons are just too frivolous, or the electrons just too anxious, cannot be answered. Someone is to blame, for it is found that the photons never go farther than a few electron clans before they are either destroyed or sent back on their way. It is too bad that this is so, for thus far the geologist and geophysicist is unable to achieve his ultimate dream. He, he cannot dogmatically state, "There's oil down there!"

Effects of the Siberian Deposit

- R. W. Johnson -

Very little is known about the geology of Russia, except what they choose to tell us. Certain observations lead one to believe that they have good reason to be so secretive. All evidence indicates that Siberia is underlain by a vast and concentrated deposit of radioactive material.

The Russian test explosions lately have been exceptionally large, which shows that they have an over abundance of uranium. Also the great number of political prisoners sent to the "salt mines of Siberia" indicates that there is a great turnover of labour. This cannot be explained by an increase in the demand for salt, but can be explained by a regular turnover in men due to the heat and radioactive poisonings.

The deposit is very concentrated and throws off a lot of heat. This can be shown by the lack of evidence of glaciation in Siberia. Also there are few people living in the area. This is cleverly turned aside by saying it is too cold. On the contrary, it is too hot.

The bombardment of high energy particles also has an effect on the world. The obvious place for the magnetic North Pole to be is at the geographic pole. Nuclear bombardment has pushed it way off course and keeps it wandering around. This bombardment is also probably responsible for mountain building, as the highest mountains are nearest the deposit.

Einstein's formula $E = mc^2$ shows that the production of energy causes a loss in matter. This loss in matter causes a shrinkage which has serious consequences. A glance at a globe shows us that directly opposite the active area is the Atlantic Ocean. This shrinkage is thus responsible for the mid-atlantic rift. Further shrinkage will continue to widen this until the earth finally splits open and collapses. Calculations as to when this will happen are being made and will presently be published.

Geophysical Methods of Groundwater Investigation and a Statistical
analysis of the qualitative and quantitative properties of some
Saskatchewan Groundwater

- J. Sample -

A team of geophysicists from the University of Saskatchewan has finally perfected an instrument which is capable of indicating the presence and nature of water contained at depth within the earth's crust. This machine, the Little Houdini Water Diviner, measures the magnitude of the earth-air currents and the readings are combined with the Moebius factor to produce the desired results.

The little Houdini Water Diviner consists of 3 triodes, 1 condenser, and a breath-a-lizer connected in series. These components are encased within a small kryptonite box. A wire attached to the second triode is passed through the lid of the box and connected to a large compass.

Exploration of an area is always carried out 3 nights after the full of the moon. The Little Houdini is set up after sundown and a series of readings are taken at 39.7 meter intervals along an east-west line. The deflection readings thus obtained give a measure of the magnitude and direction of the earth-air currents. These readings are divided by the Moebius factor to give the final value in inches b.s.d.

According to the Law of Moebius a Houdini reading of greater than 40 inches b.s.d. indicates the possibly definite presence of water at a depth of ~~4~~ Gunter's chains beneath the earth's surface. Readings of lower magnitude indicate the definitely possible presence of a $\frac{1}{2}$ volume of water at a depth of $\frac{1}{2}$ kilometers within the crust.

A reliable method of determining groundwater data in regions below the Moho has not yet been developed. However, a new type of seismic doodle-bug is now being perfected and may be utilized within the near future.

Field work was done in the Cobri area during the past summer and some significant data was obtained. Houdini tests were carried out along the axial bisector of a lower Upper Permian Drumlin. Instrument readings indicated the presence of water at a depth of possibly 19 A. Subsequent drilling confirmed the presence of water at this depth. Qualitative and quantitative tests were then carried out.

The water acquired a differential potential head of 14 Meinzers per square vara after 3 days of pumping. Chemical analysis showed that the water contained 18 million parts CH_4 , 1 m.p. ethyl alcohol, 2.5 m.p. H_2S and 10 parts rubidium per molecule of H_2O . An attempt was made to refine the alcohol but it was found that the H_2S interfered with its drinking qualities. The well was abandoned as a dry hole on September 21.

Further field work was carried out in the Kayville area of southern Saskatchewan. In this region the Little Houdini added 3 water wells and a vat of white lightning to its credit. Water well No. 1 was

2.

drilled to a total depth of 300 feet. Water was encountered at 240 feet and although it appeared to be present in sizeable quantities it was found to be unfit for domestic use. Qualitative tests indicated that addition of this water to low grade Scotch Whiskey produced an undrinkable, green colloidal substance.

Well No. 2 was drilled to a total depth of 8 feet, at which point it entered a sewage drain pipe. The hole was abandoned after 14,000 gallons of "raw" sewage was pumped onto the ice area of the curling rink.

Well No. 3 was drilled to a total depth of 300 feet. At this point the well "blew in". The resulting gusher flowed at a rate of 1 billion gallons per day for two weeks. At the same time the $\frac{1}{2}$ of Section 49 sank at a rate of 3 feet per day. Mr. Brazen Fargue, owner of the property promptly sued the University for mental cruelty and damages to his still.

The fate of the Little Houdini is still uncertain. A further report will be published pending the release of its inventors from the hospital.

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