

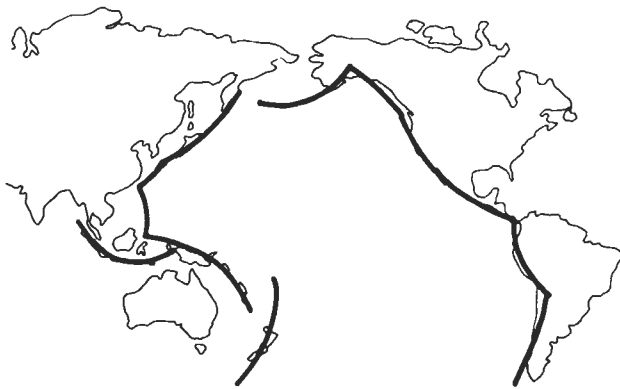
Bougainville Copper Concentrates



VOLUME THREE / NUMBER TWENTY OCTOBER, 1973.

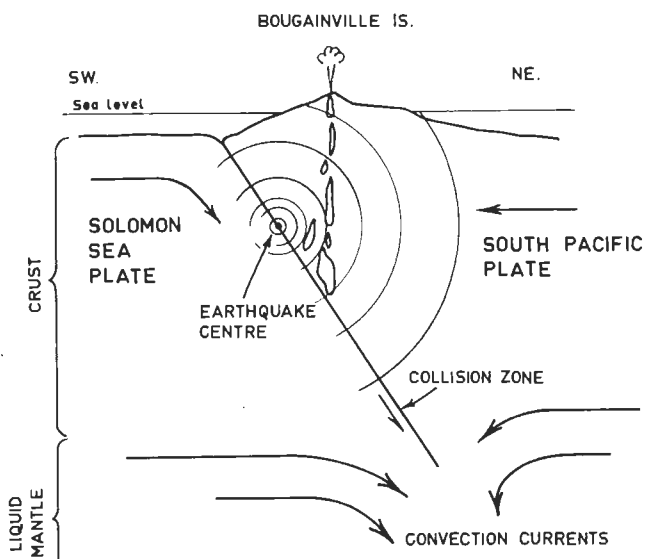


GEOLOGY OF BOUGAINVILLE



EARTHQUAKE & VOLCANIC BELTS

Fig. 1



SECTION THROUGH BOUGAINVILLE

Fig. 2

Bougainville and Buka islands lie on a volcanic and earthquake belt that surrounds the Pacific Ocean and continues around the world following the mountain chains of the Himalayas, Alps, Andes and Rockies.

In the last decade geologists have been studying this world-wide pattern (see fig 1) and have satisfactorily explained it by suggesting movement of large plate-like areas of the earth's crust often of continental or oceanic size. Obviously such movement cannot go unhindered; collision occurs, earthquakes are generated, volcanoes form islands like Bougainville in bead-like chains, mountains are pushed up, and continents drift, resulting in a gradual reshaping of the earth's surface.

It is believed that these giant plates move at speeds varying from 6 - 100 millimetres a year. Not fast one might think, but sufficient over millions of years to change the world significantly.

Figure 2 shows what happens beneath Bougainville. The Solomon Sea plate moves north-eastwards beneath the South Pacific plate, drawn by connection currents in the liquid mantle beneath. The collision zone beneath the island and earthquakes originate from this zone as the plates rub together.

How was Bougainville actually formed? Millions of years ago rocks from the floor of the Solomon Sea melted as they moved downwards beneath the collision zone. They then rose, breaking to the surface of the sea and forming the older volcanic foundations of Bougainville.

The growth is continuing today at the active volcanic area of Bagana (see fig. 3).

Coral reef formed around the coast of the young Bougainville, in the same way as those around our present shores. In what is today the Keriaka area the ancient coral reef grew by the downwarping of the sea bed to a thickness of at least 1,300 metres. Later the reef was uplifted to its present level of 1,300 metres above sea level.

Buka island was largely formed by the same process but the coral reef was not uplifted to the same extent.

Sometimes volcanic pipes have carried minerals to the surface in Bougainville's mountain ranges. At Panguna water escaped from the molten rock, transporting copper sulphide minerals to the surrounding, cooler, fractured rock where the minerals were deposited as ore. Erosion by rivers removed the volcano at Panguna and sculptured the land surface to the form we know today.

- JOHN ASHBY -

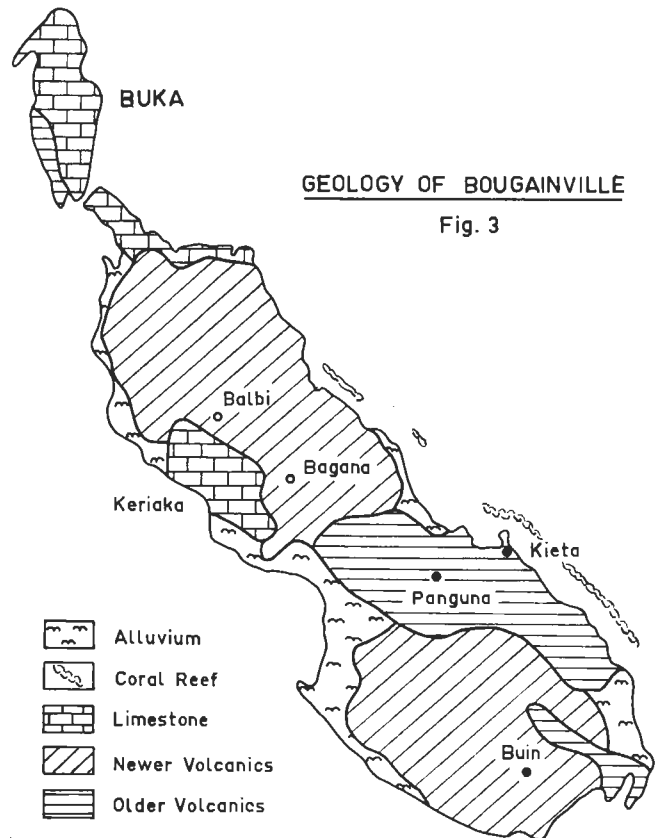


Fig. 3

FOR SALE

A fiat 500 in fine condition. Will take best offer. Reason for sale - "Going pinis" Contact house 10/16 Arawa or ring Panguna, extension - 256.

SPORT NEWS

Well all good things must end and this will be my last column in Concentrates. I go "pinis" on October 10.

Well our new complex is really taking a punishing, especially the gym. What has really amazed me is the keenness shown by the ladies both expat and indigenous in Basketball.

I have had enquiries from some of the ladies regarding a session for ladies in the circuit training room. This can easily be arranged and I will make out a circuit training routine for ladies (not too hard for a start) every Monday from 4 pm - 6 pm.

This will start on October 8. Now ladies don't let me down, Dad can look after the kids.

RUGBY LEAGUE results at the end of the competition

"A" GRADE

TEAM	P	W	D	L	F	A	PTS
KUMUL	16	14	-	2	358	135	28
BROTHERS	16	10	-	6	316	145	20
MURUKS	16	9	-	7	225	128	18
M/LAGOON	16	9	-	7	227	178	18
TURA	16	8	-	8	205	208	16
BARBARIANS	16	8	-	8	187	211	16
HIRI-PDF	16	7	-	8	210	192	15
POLICE	16	3	-	11	112	312	8
UNITED	16	2	-	13	116	428	5

"B" GRADE

KUMUL	12	10	0	2	97	21	20
M/LAGOON	12	8	3	1	64	25	19
BROTHERS	12	8	1	3	88	22	17
BARBARIANS	12	5	2	5	44	53	12
HIRI-PDF	12	5	-	7	38	80	10
TURA	12	1	1	10	44	66	3
UNITED	12	1	1	10	20	100	3

Results of semi finals on September 16 :

"A" Grade :	Marshall Lagoon	13
	Muruks	11
	Kumul	15
	Brothers	7
"B" Grade :	Barbarians	8
	Brothers	5
	Kumul	25
	Marshall Lagoon	0

So Kumul play the following Sunday for the premiership in both grand finals.

Mining defeated Concentrat in the AUSTRALIAN RULES on September 15. This means that Mining and Clerks play off the Grand Final on September 22. Even Carlton Jerseys couldn't help Spike Milligan's coast team win a premiership, but his Carlton team in Melbourne are now hot favourites for the Melbourne title.

From now on Ken Reburia is the man for all your worries and information on the sporting front.

- RON HERRICK -

(Thanks for your sporting news to "Concentrates" over the years Ron, and welcome Ken - Editor)

Panguna's first WATER POLO game took place at the swimming pool on September 17. About 15 swimmers were under the instruction of John Sertic (Admin. office manager) and Pat Fox (industrial psychologist).

Although most of the swimmers were not fit enough to race in the water for long, there was a general understanding of the game and some encouraging shots at goal. It is

intended to meet every Monday and Thursday at 4.30 pm for match play.

Arawa White was still top of the three town TENNIS tournament in the middle of September. They defeated Kieta Black by six games. Panguna Blue defeated last year's champions Panguna Green while Arawa Yellow defeated Kieta Red.

The table stood as follows :

Arawa White	14
Panguna Blue	12
Panguna Green	10
Arawa Yellow	8
Kieta Red	4
Kieta Black	0

Tennis players from Panguna, Kieta and Arawa competed in the "Swan" doubles tournament on September 15 at Arawa. Due to the number of players, the plantation tennis court was used as well as the two new courts adjacent to the Arawa Country Club.

Rain delayed the start of play but eventually the weather cleared allowing the 40 or so players to do battle for trophies kindly donated by Swan - San Miguel.

Wayne Cowie was at his brilliant best as he and John Roth took out the mens doubles from John Eccles and Kako Maiko. Bill Moss and John Beauchamp were others that played well.

The ladies doubles was won by Christine Cairns and Kay Moss who defeated Vivien Mitchell and Emma Van Der Linden 6 - 3 in the final.

The final of the mixed doubles was played under lights at the plantation court and this was won by Helmut Konigschofer and Dianne O'Reilly. Helmut has only recently arrived on Bougainville so it was a good start for him. Runners up in the mixed were Grant Geraghty and Elizabeth Hodder who played some good tennis but found their opponents just too good in the final.

Trophies were presented by the Arawa Tennis Club President Rod Bowden at a barbeque held at the Arawa Country Club on Saturday evening. Altogether a good day and it is to be hoped the Tournament will become an annual event.

- IAN CAIRNS -

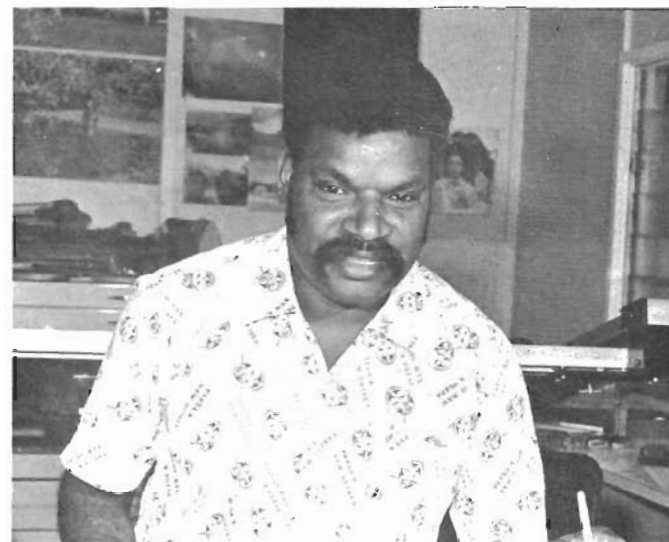
STORK CLUB

A son was born to Alice and Essonia Nunuar of Training Centre on August 12. Baby girl born to Aylin and John Kaeaka of Mining on August 16. A boy, William, was born to Phylis and Nawa Yalus of Port on August 27 and a baby, Karen Margaret was born to Margaret and John Gill of the Powerhouse, Loloho, on September 7.

CONCENTRATES IS EDITED BY JOHN WAKARIA
AND JOHN PIPPIN. TEL. 5-255
PHOTOGRAPHERS ARE GENA ILAI AND GERARD
KONDJOL. TEL. 5-127

PEOPLE

Below, left to right, Elidah Howard, trainee accounting machinist; Roge Ani, r. Vali, technical assistant, concentrator. Middle, all three from the draughting draughtsman; Frederick Ageda, senior architect draughtsman and Conrad Kauma, a maintenance concentrator; George Gauci, concentrator superintendent and Thomas I



clerk, personnel services and her husband
on of engineering - Tom Moripi, electrical
architect draughtsman. Bottom, Ron Bibby,
clerk, village relations section.



INTERMEDIATE OUTPATIENTS CLINIC CHANGES

With the establishment of two private general practitioners in Arawa, the hospital intermediate outpatient clinic has been discontinued.

Patients will be seen as intermediate patients by a Department of Public Health specialist or medical officer only on referral from a private practitioner or in genuine emergencies when a private practitioner is not available.

Expatriate patients are free to attend the general outpatient clinic where they will be seen in all instances by a trained sister, nurse or hospital orderly and will be seen by a medical officer only if considered necessary.

Private medical practitioners in Arawa are :

Dr. P. Weber
Maicore Place,
Section. 19/27,
Arawa.
(Telephone 95112)

Drs. Hutchinson & Vacca
Sioba Place,
Section 17/24,
Arawa.
(Telephone 951744)
Also consulting at P.H.D.
Health Sub-Centre, Panguna

GENERAL OUTPATIENT CLINIC HOURS - ARAWA HOSPITAL

Monday to Friday - 8.00 a.m. to 12 noon and
1.00 p.m. to 4.00 p.m.

Saturday }
Sunday } 8.00 a.m. to 12 noon.
Public Holidays }

Outpatients will be seen outside these hours in emergencies.

Clinic starting times at the P.H.D. Health Sub-Centre Panguna, on Mondays and Fridays have been changed to 10.00 a.m. and on Wednesdays at 1.30 p.m.

films

PANGUNA

Thurs & Fri. Oct 4 & 5	Red Sky in the Morning	No Press Sheet Available
Sat. & Mon. Oct 6 & 8	Trinity is Still My Name	Bud Spencer Yanti Somer
Sun. & Tues Oct 7 & 9	Jory	John Marley B. J. Thomas
Thurs & Fri. Oct 11 & 12	Babes in Toyland	No Press Sheet Available
Sat. & Mon. Oct 13 & 15	Man Hunter	No Press Sheet Available
Sun. & Tues Oct. 16 & 18	Woman Times Seven	Shirley McLain Allan Arkin

ARAWA

Fri. Oct. 12	Trinity is Still My Name	Bud Spencer Yanti Somer
Sun. Oct. 14	Red Sky in the Morning	No Press Sheet Available
Wed. Oct. 18	Jory	B. J. Thomas Robby Benson

The above programmes are subject to change as they depend on films arriving on site as scheduled. It is also regretted that press sheets have not been received for some of our forthcoming attractions.



Above, the first group of participants of the course.

COMINGS AND GOINGS

Welcome to the following : P. Cusak, switchyard foreman, engineering; G. Miller, truck foreman, mining; R. Keith, senior analyst, concentrator; R. Cobbings, operating foreman, concentrator; L. Keene, stenographer, financial control; I. Pearce, cash registrar, medical centre; Y. Griffiths, typist, financial control; M. Aeaba, Port Moresby liaison assistant; L. Castellano, sign writer; E. Zanetti, carpenter - engineering; A. Hanunbo, clerk, engineering; J. Misivet, concentrator attendant; J. Kunubin, concentrator attendant; J. Aisal, concentrator attendant; A. Marava, trainee R105 operator; N. Tokapa, cable mover, mining; M. Moimeri, trainee R105 operator and W. Tipau, concentrator attendant.

Farewell to the following : R. Jeffrey, personnel and localisation manager; J. Craigie, personnel and training supervisor, commercial enterprises; J. Picken, camp supervisor, personnel services; V. Clarke, stenographer; S. Muirhead, heavy equipment fitter, mining; J. Harnas, electrician; M. Sulzberger, leading hand electrician, mining; G. Fenson, heavy equipment fitter, engineering; R. Ovasuru, typist, mining; K. Wight, fitter, engineering; C. Watts, leading hand carpenter, engineering; G. Winchester, refrigerator mechanic, engineering; and W. Jackson, leading hand carpenter, engineering.

EMPLOYMENT NEWS

Periodically the employment section of B.C.L. is advised of vacancies which come up from other companies within the C.R.A. group. To ensure that all staff members are aware of these vacancies, in future, current group staff transfer positions will be advertised in "Concentrates".

Personnel interested in applying for any of these positions are asked to write to the employment supervisor giving full details of his current position.

Current Wage Vacancies : Customs house clerk, accounts payable reconciliation clerk, clerk, supply accounts

MANAGEMENT DEVELOPMENT COURSE

B.C.L. extended its management development activities recently with the introduction of two courses, held at Panguna in conjunction with the Australian Institute of Management and led by Mr Les Manwaring, a senior member of the institute in Sydney.

The courses, each of four days duration, were attended by a total of 40 senior indigenous and expatriate personnel representing all departments of B.C.L. The object to the programme was to extend the participants' existing knowledge of current management theory and practice and provide experience in management skills.

Each course provided an overview of the following areas :- organisational theory and development, management by objective, counselling and problem solving, cooperation and collaboration.

The extensive range of the programme demanded a high level of personal application, participation and contribution on the part of those attending and considerable use was made of films, role playing, group discussion, case studies and syndicate exercises in order to encourage participation and maximise effective assimilation of the material.

A reception was held at the conclusion of each course attended by participants and senior company executives.

GOURMETS CORNER

As an alternative to the usual kind of barbeque here's my special recipe for shishkabab.

Take a medium size leg of lamb and remove sinews and grease. Bone out and dice into 1½ inch cubes. Marinate in yoghurt, onion and bayleaf. Leave for a day and in the meantime prepare thick slices of raw onion, green pepper and tomatoes. Place meat, bayleaf and vegetables one after another on as many skewers as needed.

Take a grill out of the oven and place it over a hot bed of coals. Grease the grill and when the coals are cooled slightly place the shishkabab on the grill. When cooked to personal taste place the skewers on a large bed of pilaf rice and serve.

To make ris pilaf melt 4 oz of butter, chop 1½ onions and fry slightly; add four cups of rice, stir and cook slightly. Cover with chicken stock and a pinch of saffron, bring to boil, stir, cover with lid and finish off in an oven.

A full blooded red wine would wash down the meal with a vengeance.

- EDDIE MUCHA -

clerk, R105 operators, concentrator operators, laboratory assistants. Current Staff Vacancies : Supply office supervisor, surveyor, civil detail draftsman, assistant security officer. Current Senior Staff Vacancies : Truck shift foreman, assistant unit controller, supply officer, senior technical assistant concentrator, mechanical foreman concentrator, equipment instructor. Current group staff transfer vacancies : Environmental scientist - C.R.A. Melbourne.

- NEIL R. STEWART -



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PRESENTATION OF FIRST AID CERTIFICATES

Fourteen Guides from the 1st Panguna Guide Company were presented with their St. John Ambulance junior first aid certificates on September 12. Those presented were Bridget Blackwell, Anne Cameron, Gail Dunkley, Sheryl Erickson, Elizabeth Gauci, Kerry Hort, Sandra Martain, Rosemary Moses, Allison Shaw, Toni Shinnick, Amanda Sutherland, Ensi Wartovo, Russila Wartovo and Wassiter Wartovo. Certificates were also gained by Lana Shinnick, Susan Ambrose, Kim Robinson, Tanya Robinson and Christine Jeffs. Their Guide Leader, Elizabeth Bissaker was also presented with her St. John Ambulance Adult first aid certificate.

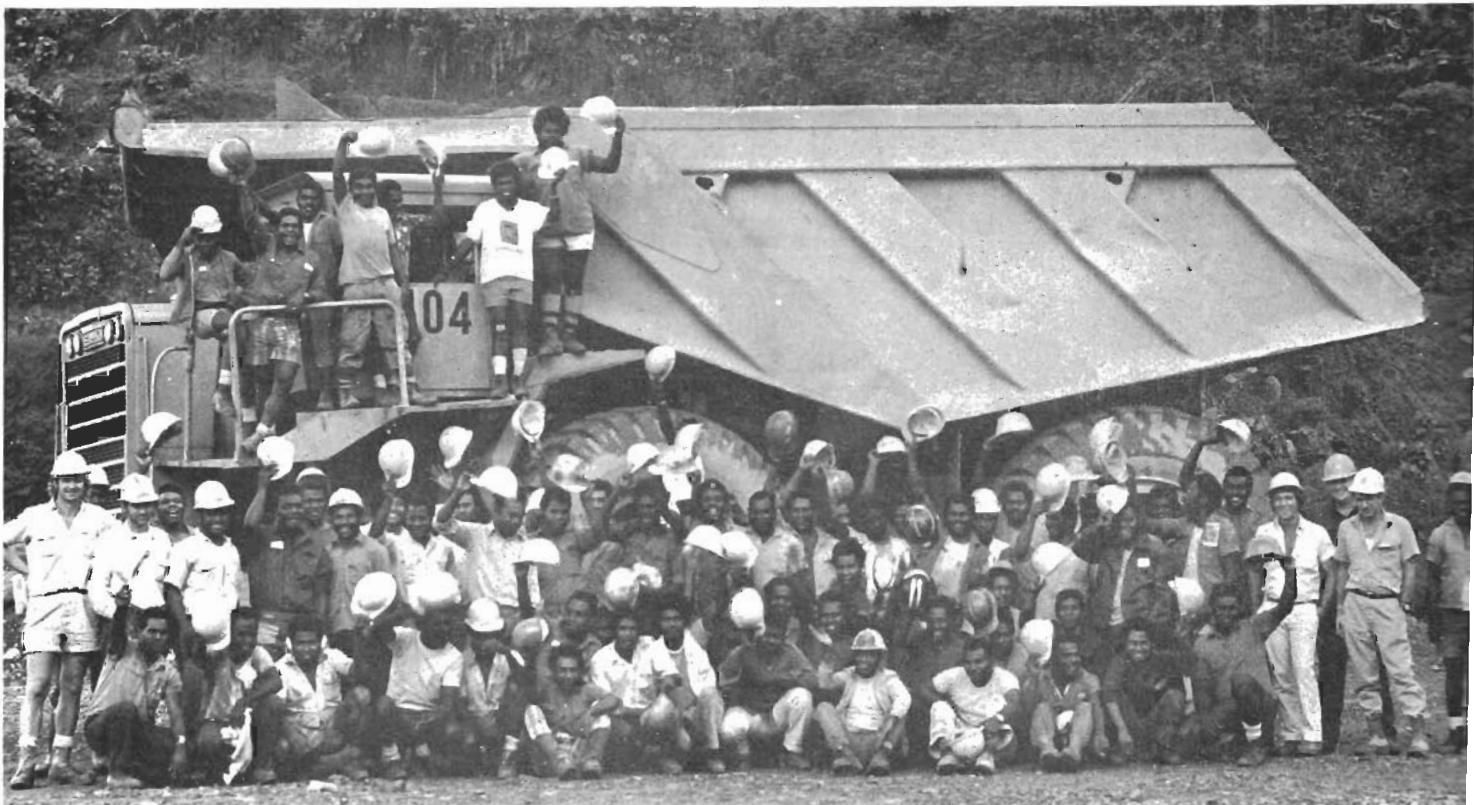
Top marks for the examination was gained by Bridget Blackwell, Elizabeth Gauci and Sandra Martain.

Those girls attended lectures for 15 weeks which included both theoretical and practical first aid conducted by John Dunkley. At the end of the course all girls sat for an exam and all passed which entitled them to their Guide first aid service badge.



Above and Left, the scenes during the ceremony of the presentation of certificates.

Below, more smiles and the moments of being away from actual pit operations. This time it is the crew three of electric shovel and R105 operators.





TONIVA EVERYMAN'S CENTRE

Toniva's Everyman's Welfare Centre, the only second one of its kind in the whole of Papua New Guinea (the first one being in Port Moresby), was officially opened by the District Commissioner for Bougainville, Dr. Alexis Sarei, on September 22.

Construction of the centre commenced in January, 1972, and has just been completed recently. The erection of centre, three buildings and a basketball court was carried out by the students of Kieta Vocational Centre under the supervision of their principal, Mr. Graeme Furlong, who is also the chairman of Everyman's Kieta committee. The Centre includes study rooms, a library, a recreation hall, which can also be converted into a cinema when there are films to be shown, and a canteen.

Everyman's is a Christian interdenominational service organisation sponsored by Campaigners for Christ P.N.G. It is not a church. Commenced in Port

Moresby in 1955, Everyman's seeks, in co-operation with churches and other volunteer organisations, to meet the social, spiritual and physical needs of young people regardless of race, tribe, mission or status. Everyman's is a member of the Evangelical Alliance of PNG and an associate member of the Melanesian Council of Churches.

Top photos, (left) speaking at the microphone during his opening speech at the opening is District Commissioner, Dr. Sarei. Sitting, far right, is Philemon Tulo, chairman of the opening programme and at the back (centre) is one of the many youngsters that came to see the opening. Right, a group picture of the foundation committee of Toniva Everyman's Centre.



John Eccles



John Wakaria



John Pippin

Over the last two years Concentrates has been edited by John Eccles, John Wakaria and John Pippin. During this period we have moved steadily toward our localisation target. In this issue we have achieved our target. John Wakaria and John Pippin have now assumed editorial responsibility for all publications. I am sure you will join with me in wishing them all success.

May I on behalf of BCL personally say "Thanks for a job well done" to John Eccles. All our best wishes go with you and Rita when you set off, at the end of October, on the next leg of your round the world trip.

Cliff Newman
Public Relations Manager.