GMC
338.4766550956
ARA
Vol. 1 No. 1
Jan 1978

ARAB OIL

The International News Magazine for the Oil Industry

exclusive
Sheikh Zaid talks to ARAB OIL

Bahrain 350FS
Belgium 37FR
Canada 1.25 dollar
Cyprus 400MS
Denmark 6.50KR
Egypt 50PS
Finland 5MK
France 5F
Germany 3.50DM
Greece 35DR
Iran 80RS
Iraq 300FS
Italy 1000L
Jordan 300FS
Kuwait 250FS
Lebanon 3LL
Libya 400MS
Oman 500P
Yemen 6RS
Qatar 4RS
Saudi Arabia 3RS
Sudan 350M
Sweden 5.50KR
Switz 3FRS
Syria 4SL
Tunis 450M
Turkey 16TL
U.A.E. 4D
U.K. 50P
U.S.A. dollar 1.00

The key to your business in the Middle East.

NBK Largest and leading bank in Kuwait for almost 25 years.

NBK The bank which has grown with Kuwait to meet the demands of the economic and infrastructure development.

NBK Full service bank able to take care of all commercial, merchant and investment banking requirements.

NBK Worldwide correspondent banking network.

Before undertaking any business in Kuwait or the Gulf area, use your golden key and consult our international banking group.

The National Bank of Kuwait S.A.K.

Graphics-McCann

Smooth as silk to Frankfurt & Paris.

Fly Thai to Europe and experience some of the smoothest service in the world.
Relax onboard our wide-body DC–10's and enjoy superb cuisine, inflight entertainment, and warm personal service.
From Kuwait, Thai flies direct to Frankfurt and on to Paris every Friday.
Thai smooth as silk to 29 cities in the Orient, Europe and Australia.

Ask your travel agent or our G.S.A., Behbehani Travel Bureau Telephone: 439561/2 for details of our flights from Kuwait

Pumps for Offshore Technology

KSB can offer you a comprehensive range of pumps for offshore applications, including

- pumps for all application aspects of crude oil and natural gas extraction,
- submersible motor pumps for cooling water service (using sea water as coolant), and for bilge and ballast pump service,
- transverse thrusters as manoeuvring aids for offshore supply and service vessels.

The KSB sales programme is based on decades of intensive research and development, and it comprises a wide variety of pump models covering the entire range of outputs, pressures and temperatures which occur in practice.

Why not make use of our wide experience in the fields of marine, process industry, water supply and power station pumps which will unquestionably prove beneficial to you in the field of offshore technology.

KSB Klein, Schanzlin & Becker Aktiengesellschaft D—6710 Frankenthal (Pfalz)

7-0425-2

PUBLISHED BY
Gulf Media Centre London
PRINTED AND DISTRIBUTED BY
Dar Al Seyassah Organisation, Kuwait
LONDON:
3, Dunraven Street, W.1Y 3FG
Tel. 01 499 4741, Telex: 298612
KUWAIT:
P.O. Box 2270, Tel. 813566, Telex: 2332

EDITOR-IN-CHIEF:
Anthony Purdy

PRODUCTION:
Gordon W. Pearse

ADVERTISING MANAGER:
Tawfiq Mansour (Kuwait)
Irene Lau (International)

ART DIRECTOR:
Lewis Morland

DISTRIBUTION:
Abdel Kader (Kuwait)
Charles Barr (U.K.)

SUBSCRIPTIONS:
Ella Christie

ACCOUNTS:
Abou Housam (Kuwait)
Angela McGowan (London)

EDITORIAL SECRETARY:
Kim Purdy

DESIGN:
Bahrain: AAA
London: Mike Coles; Denis Tuttel; Joe Cleary
Kuwait: Ahmed Shafeeq

CONTRIBUTING EDITORS:
Ahmed Jarallah; Mohammad G. Al-Rumaihi; Mustafa Abu Laddah; David Lynn Price; James Russell; John Pooley; Doina Thomas; Mohammad Zein; Yahya Mahmoud; Ralph Izzard.

RESEARCH:
Dinah Gallop; Clare Cooper; Wendy Morland

COVER:
Lewis Morland

ADVERTISING REPRESENTATIVES:
U.K.: Overseas Publicity Ltd. 214, Oxford Street, London W.1N OEA, Tel: 01 636 8296 Telex: 24924
U.S.A.: Inta Advertising, Inc., 1560 Broadway, New York N.Y. 10036, Tel: (212) 575 9292.
France: Sodepar, 12 Rue Tronchet, 75008, Paris, Tel: 742 48 23, Telex: 280766
Italy: Publicitas, Via E. Filiberto 4, 20149 Milano, Tel: 348541/316051, Telex: 37239
Spain: Emprosa, Avda Generalisimo 96, Madrid 16, Tel: 4586137, Cable: OGARRIO
Bahrain: Awal Advertising Agency:, Box 693, Al-Fateh Building, Tel: 50004, Telex 8669 AAA GJ

ARAB OIL has been a year in the making, and it could not have been launched at a more appropriate time. The year has seen the Western world absorbing both the shockwave of oil price increases and the benefits that the unfettered spending power of the newly-rich Arab states has given them.

The Third World, especially sensitive to the heat of oil-fired inflation, has undergone radical changes in policies and politics. The most dramatic visible changes of course, have been in the Arab states themselves, in the creation of a new world overnight.

The political and sociological problems massive wealth has brought them, and the accompanying moral responsibilities, are demanding standards of leadership and knowledge never before called for. Fortunately for all of us, they do exist.

Arab Oil is a news magazine created to record these events. It is objective, in that it will report criticism and praise impartially. It is not subsidised by a government or the oil industry, nor is it subject to censorship. Its staff is international, and the contributors writers of the highest repute in their fields.

Arab Oil will attempt to appeal to the widest audience, to everyone who works or has an interest in the oil industry. We have remarkable technology at our disposal—one of the most advanced computer - controlled typesetting plants in the world, international facsimile transmission for page design, a communications system linking London, Kuwait and Bahrain—and we intend to develop a news service and a distribution system that will exploit such exciting technical potential to the full.

In 1978 the economics of Arab oil will affect everyone.

ARAB OIL WILL TELL YOU HOW.

CONTENTS

ASRY
OPEC's Concorde Page 28

ISRAEL
Secrets of the Sinai Page 32

DEFENCE
A cold look at the unthinkable Page 12

RUSSIA
How much oil is there? Page 24

COVER STORY
Sheikh Zayed Page 17

OPEC AID
Are the Arabs just helping their own? Page 27

SURVEY
Qatar's new gas field Page 38

BOOKS Page 45 — DIARY Page 43 — CONTRACTS Page 41
WORLD PRESS Page 45 — AVIATION Page 37 — AGRICULTURE Page 37

Only one bank in Kuwait lets you have cash 24-hours-a-day

Why wait in line at teller windows? No need to waste time. From now on, just insert your card into one of the Commercial Bank's Cash Dispensing Machines and take your money.

As simple as that......
24-hours-a-day, 7-days-a-week:
ANY TIME. Come to any branch of the Commercial Bank and apply for your "Any-Time-Cash" card-the key to easy banking...

The Commercial Bank

OPEC

CARTER FLIES IN

President Carter arrives in Riyadh on January 3rd for talks with King Khaled on US relations with OPEC and on the latest Egyptian-Israeli situation.

Saudi Arabia will be the fourth stop on his postponed six-nation tour, due to have taken place two months ago.

The President is travelling under a disadvantage he openly admits — continued inaction by Congress on his energy policy which might be viewed by other countries as a sign that the United States is unable to solve its domestic crises. But the Sadat initiative, hopes for Middle East peace and the freeze — if only temporary — on OPEC's oil prices have helped the President's prestige at home and abroad.

His schedule: Poland (December 29-31), Iran (December 31-January 1), India (January 1-3), Saudi Arabia (January 3-4), France (January 4-6), Belgium (January 6).

In Iran discussions with the Shah were to include human rights, Iran's plans for nuclear development, future U.S. military aid and a long-term and more stable relationship on oil. National Security Affairs adviser Zbigniew Brzezinski said that talks in Teheran were important because of oil supplies and Iran's role in maintaining stability in the Gulf.

In Riyadh the President will give the Saudi Cabinet his reaction to the Caracas OPEC meeting. The American public greeted the price freeze with relief. - AP/AO

From a traditional Arab coffee pot symbolising hospitality the Amir of Bahrain pours holy water from Medina's sacred well into the dry dock.

The biggest event in Bahrain's year came in the last days of 1977 with the opening of the huge dry dock for the Arab Shipbuilding and Repair Yard company. Forty tankers are expected in the next twelve months, but the dock will be uneconomic for years to come.
See "OPEC's Concorde", pages 28, 29, 30

OIL A.O. JAN: 78.

Warm Welcome to Freeze

THE SIX-MONTH freeze on oil prices has been welcomed internationally, though with reservations and, in some quarters, apprehension. It is feared that at the next meeting of OPEC in June a five per cent increase might be backdated to appease the hawks of Libya, Iraq and Algeria.

Delegates of these countries expressed strong dissatisfaction with the result of the Caracas conference. Libyan Minister Ezzedin Mabruk described it as "a bad situation" with political considerations overriding economic interests of OPEC members. He had been pressing for a 28 per cent rise, and some observers believe that Libya may adopt a go-it-alone policy of increasing the price to countries to whom it is giving economic aid.

After the meeting Saudi Arabia's Zaki Yamani argued that it was the "market realities" which had imposed the freeze—referring to the current glut of two million barrels a day on the market. This is equivalent to six per cent of OPEC production.

Saudi Arabia's concession to the Libyan camp may be to cut production. "Once the surplus on the market is eliminated, neither the United States nor any other country could impose a freeze" Yamani told a news conference.

Britain and other European countries welcomed OPEC's decision as "realistic" though a spokesman for the European Energy Commission warned that inflation rates could not be held down unless the freeze was extended to more than six months.

The next half-yearly meeting of OPEC will be held on June 15th. No decision on the venue has been taken, but ARAB OIL understands that London will probably be chosen.

"... and a Happy New Year to You!"

Take the southern gateway to the USA

National Airlines flies you direct to the South. London to Miami non-stop.

There's no need to go north when you're going south. National Airlines flies you direct to Miami in wide-cabin DC10 comfort.

And onwards to Houston, New Orleans and other major cities in the South and Southwest–without switching you to another airline halfway.

When you're with us, we're with you all the way. Our service is the way businessmen like it. Businesslike. No fuss–just fast when you want it.

Another good reason for taking the Southern Gateway is our convenient connections to the Caribbean and Central and South America.

Our on-the-button service is why three out of four of our passengers have flown with us before.

The Southern Gateway to the USA

National Airlines

Contact your travel agent or National Airlines, 81 Piccadilly, London W1V 9HF. Telephone 01-629 8272. 102 Champs Élysées, Paris 8e. (225 6475, 256 2577, 563 1766) Wiesenhüttenplatz 26, 6 Frankfurt/Main (231691, 232101). National Airlines Inc. is incorporated in the state of Florida, USA.

INTERNATIONAL

TOO MANY INDUSTRIAL SECRETS

This paper was presented by Abdel Kader Maachou, President of Sonatrach France and Algeria, to delegates at the OAPEC conference on Opportunities for Cooperation between Japan and the Arab World.

The critical problem in the developing countries is development itself. We are in a vicious circle: Development can only be undertaken with industrialisation, yet industrialisation cannot be effective without the real transfer of technology. This means that development, in all its economic, cultural and industrialisation.

Social needs increase and diversify in developing countries, and can no longer be satisfied only by industrial production. Numerous grave problems arise as to the means of paying for development. Not all countries are fabulously rich. What happens in reality is that the poor countries, lacking the riches of other countries, are condemned to remain in a state of underdevelopment. They have no basis for economic development and find themselves excluded from it. Some manifestations of the increase and diversification of social needs are especially true for countries like Algeria and Egypt which have rather good domestic markets—a basic condition for development that does not exist in some other countries.

The problem of the transfer of technology is therefore very complex and requires the meeting of a certain number of conditions. But there are also obstacles in the face of this transfer which are not always due to the developing countries themselves. We have said a great deal about such difficulties, as for example, the coveting of industrial secrets by too many companies that are engaged in a so-called transfer of technology.

There have been fictitious transfers of technology that have reduced the developing countries to the role of subcontractors on an international scale. And there are various other obstacles.So, together with the required research efforts, which unfortunately, our countries are barely taking into account, the discovery of a technology is also the basis for stimulating research. It is up to the wealthy developing countries to set up research programs. And it is up to them alone—to determine which programs are valid for their countries, instead of just accepting to undertake the programs that their partners suggest. It is also for them to determine the extent of the time lag which will occur in the implementation of different programs. That is how our country has embarked upon a difficult process, because we have accepted the challenge posed by the various restraints, and embarked on a reorganisation of our environment so that we can better accept technology.

Of course, I am not talking about transforming the tortoise into a hare, but certainly many of our countries have been rabbits which have been napping for too long. We cannot wait 50 years until transfer of technology has been fully developed.

BRAZIL, CHILE LOOK OFFSHORE

Offshore South America moved into the exploration arena last month with the announcements that BP is drilling off the Brazilian coast and Atlantic Richfield and Amerada Hess are to explore Chile's continental shelf, the first foreign companies to explore in either country.

Petrobras explored unsuccessfully for oil in the same offshore region where BP now is operating. The BP subsidiary, British Petroleum Development Brazil, is working from a platform located in water 100 metres deep.

Brazil, which had given Petrobras exclusive rights to explore for oil in Brazilian territory since the 1950's, in 1975 decided to allow foreign firms to search for oil on a risk contract basis. The country was hard hit by the steep rise in oil prices beginning in 1973.

Under risk contract agreements, foreign firms are allowed to search for oil in designated areas. If they are unsuccessful in their exploration, the foreign firms must bear the operational costs. Brazil will purchase any oil found.

On December 7th Atlantic Richfield Co., and Amexada Hess Corpn., signed a contract with the Chilean Government Oil Enterprise to explore a 300-mile stretch of Chile's continental shelf.

The contract calls for an exploration phase of five years with investments in equipment and supplies of about 11 million dollars, then an exploitation period of 30 more years if the exploration is successful.

The area covered in the contract extends south of the island of Chile terminating about 350 miles north of the Straits of Magellan. The state oil enterprise, known as ENAP, is already exploring in the Straits.

BRIEFLY......

SUPERPIPE

SUDANESE President Jafar Numairi inaugurated the world's largest oil pipe line, spanning Port Sudan and Khartoum, a distance of 815 km. The project was financed by Kuwait and took three years to build. It has an annual capacity of 600,000 tonnes.

TURKISH DELIGHT

TURKEY has secured a 9.6 million dollar loan from the Islamic Development Bank for importation of 120 thousand tons of fuel oil from Pakistan. This is the second credit Turkey has obtained from the Islamic Bank. Three months ago 10 million dollars was borrowed for the importation of coal for Turkey's steel industry.-AP

BRAVO BILL

PHILLIPS Petroleum Company owes the Norwegian government 4,085,570 Kroner (782,000 dollars) after last summer's blowout at Phillips' Bravo rig in the North Sea. The bill will be presented this month. According to Norwegian law, the oil drilling operators are obliged to cover costs suffered by the state institutions during their efforts to stop the bravo blowout.-AP.

SUEZ LOAN

ABU DHABI is to lend Egypt 60 million Dirhams (17 million dollars) for the improvement of the Suez Canal, Qatar radio reported. The interest-free loan extended by the Abu Dhabi fund for Arab Economic Development is repayable over 28 years.-AP.

A new force in international commercial banking

بنك الإتحاد العربي

Allied Arab Bank Ltd

Now established in London, Allied Arab Bank is in a unique position to provide financial advice and services to Arab customers and corresponding assistance to Western clients seeking to develop business in the Arab world.

Allied Arab Bank offers the full range of international commercial services provided by an authorised bank.

Allied Arab Bank Ltd

Cunard House, 88 Leadenhall Street
London EC3A 3DR
Telephone: 01-283 9111
Telex: 886959

SAUDI ARABIA

Turning on the Tapline Again

Reprinted by courtesy of Middle East magazine.

AFTER two and a half years of lying practically disused, the Trans-Arabian pipeline (Tap-line) could be about to come back into full operation if new moves prove successful.

Tapline came on stream for the first time in 1950, with the then enormous carrying capacity of 320,000 barrels of crude oil a day. This was subsequently raised to 440,000 barrels a day to serve the oil-hungry markets of Western nations that had the experience of oil shortages and oil price rises to come.

The pipeline runs from Saudi Arabia's eastern oilfields along the northern frontier of the country, crossing into Jordanian, Syrian and Lebanese territory, with its terminal at Zahrani, close to the southern Lebanese port of Sidon. The length is about 1,000 miles.

The purpose behind its construction was to give crude oil from Saudi Arabia's newly discovered and prolific oilfields an alternative outlet to the constricted waters of the Gulf. Tapline thus made Saudi crude available at the eastern end of the Mediterranean, conveniently close to the oil markets of southern and western Europe.

Over the years, however, the pipeline has been plagued by difficulties over transit dues. At one time or another each of the states through which the pipeline passed clashed with Tapline's owners..

When Tapline was effectively shut down in February 1975, the company said it was because of the lack of tankers to off-load oil from the Mediterranean terminal, where all storage tanks were full. But Jordan, which had objected to paying more than 13 dollars a barrel for the oil it had been receiving from Tapline for the Zarqa refinery for less than a quarter of the new price, protested that the company was merely exerting pressure so as to bring the dispute over oil prices and royalty payments to a head.

It is doubtful, however, whether the Lebanese end of the line could anyway have continued to operate normally during the Lebanese civil war. Sidon, certainly, has not of late been a port to attract international tanker traffic. And Tapline has continued, since 1975, to pump parcels of crude oil up the line to the refineries in Lebanon and Jordan.

Saudi Arabia is now working on alternative pipeline schemes. One 48-inch pipeline will cross the country from the eastern oilfields to a point near Yanbu on the Red Sea coast, where it will supply a big new petrochemical and refining complex, as well as an export terminal.

There are also plans to link the eastern oilfields, and possibly those of other Gulf states, with the open waters of the Indian Ocean on the Hadhramut or Dhofar coasts.

Despite these schemes to overcome Saudi Arabia's present reliance on the Gulf as its sole export route, the fact remains that Tapline is still in good working order and could be fully utilised again if the question of transit dues could be settled.

The pipeline's profitability would also of course depend on factors such as demand for Saudi crude and the level of tanker freight rates, as depressed tanker dues can make the shipping of crude all the way from the Gulf even cheaper than taking a short cut for part of the way with an overland pipeline. Indeed, the world slump in tanker rates which followed the 1973-74 oil crisis was one factor leading to under-utilisation and eventual closure of Tapline.

It is expected that, as part of the arrangements for Saudi Arabia's final takeover of the Arabian-American Oil Company (Aramco), ownership of Tapline will be transferred from Aramco to Aramco's four US parent companies: Exxon, Mobil, Standard Oil of California and Texaco.

In order to ensure the continued use of the line, both to supply Jordanian and Lebanese refineries with Saudi crude and, in the longer term, to provide an export outlet for Saudi crude, the Lebanese Government has made new proposals for the operation of Tapline. These proposals are based on replacing the present system, under which Tapline pays fixed transit fees to Saudi Arabia, Jordan, Syria and Lebanon, with profit-sharing arrangements between the pipeline company and the transit states.

It has been suggested that the profits should be calculated on the difference in value between Saudi crude at the main Saudi export terminal of Ras Tanura and Sidon. There would be quarterly adjustments on the basis of tanker freight rates and oil-market conditions.

The cost of operating Tapline would be subtracted from the difference, with 20 per cent of the resulting profits going to the company and 80 per cent to the four transit states, 58 per cent of this amount going to Saudi Arabia and 14 per cent to each of Jordan, Syria and Lebanon.

Acceptance of this formula by all the parties would probably be a sufficient incentive to enable Tapline again to become an important oil transport artery — if freight rates and the general state of the international oil market are also right.

The British Bank of the Middle East

A Member of The Hongkong Bank Group

United Kingdom
Near & Middle East
India
Switzerland

Head Office & London Main Office
99 Bishopsgate
London EC2P 2LA
Telephone: 01-638 2366
Telex: 884293

and at
Falcon House, Curzon Street
London W1Y 8AA
Telephone: 01-493 8331 Telex: 27544

Love is the kind of music. That carries.

Radio cassette recorders brought to you with love from Hitachi.

TRS-5031W
4-band (MW/SW1/SW2/SW3) extra-sensitive portable radio with cassette tape recorder. Memory device for quick reviewing. Built-in condenser mike. Review/Cue, Auto Stop. 3-way power source.

TRS-5141W
4-band (MW/SW1/SW2/SW3) portable radio with cassette tape recorder. Powerful 2-way speakers. Variable monitor system. Review/Cue and sound mixing mechanism. Auto Stop. 3-way power source.

LN-C60
Low noise cassette tape capable of recording for 60 minutes.

A Cold Look at the Unthinkable

by DAVID LYNN PRICE

On 20th October 1977, US Secretary of Energy James Schlesinger declared that the USA might resort to military action to protect its sources of oil in the Middle East.[1] Reaction in the Gulf was immediate and blunt; Kuwait's Minister of State, Abdul Aziz Hussein said that "any US military intervention in the Gulf will be treated as aggression".[2] The Kuwaiti statement supported that made earlier by the UAE Oil Minister, Mana Saeed Oteiba, that the "UAE will permit no intervention infringing on its national sovereignty".[3]

Since Dr. Kissinger's controversial statement in Business Week (January 2, 1975), the prospect of American occupation of Arab oil fields has been seriously considered by US, European and Arab analysts. A majority view dismissed military intervention as unthinkable. This was surprising because the history of Western behaviour in the Middle East offers several examples of military action to protect Western economic interests; in 1946 troops were sent to Basra from India to contain serious riots at Abadan; following the nationalization of the Anglo-Iranian Oil Company, land and naval forces moved to the eastern Mediterranean and to Iraq; in 1956 the Anglo-French invasion of Suez was a disastrous attempt to prevent the nationalization of a major economic asset.[4]

Consequently, the US reaction to the 1973 embargo had several precedents and since the end of that year US troops have been given intensified desert—warfare training. But in preparing a contingency plan for the invasion of the oil fields, three points need to be considered; (1) In what circumstances could an invasion take place (2) the targets and methods of the invasion and (3) the local and international consequences.

In 1974, the US Government gave some indication of its reaction to another oil embargo. James Schlesinger, then Defence Secretary, warned Arab oil producers that they would risk military reprisals if they were to cripple the industrial world; he did not expect those circumstances would arise but, if they did, the Arabs must expect force to be used against them. The following year, Schlesinger was asked whether, from a military point of view, military intervention in the Middle East was practical. He replied that "in the Persian Gulf area" it was possible, though he later pointed out that such action would be considered "only in the gravest emergency".[5]

Therefore in the event of another

DAVID LYNN PRICE is a consultant for the Institute for the Study of Conflict, London and the Institute of Strategic Studies, specialising in the Gulf.

Arab—Israel war and a possible oil embargo by the Arab oil producers, the military option would be the last to be considered by the consumers. But the option exists. The impact of the last embargo was reduced by the negotiation of a cease fire, by rationing, by conservation and by the search for alternative sources of energy. But if a future embargo is prolonged, say six months, so depleting the emergency stocks of the consumers, it is probable that not only the US, but all the industrial states could become sufficiently united to approve armed attack in the Gulf. Oil producers have a good idea of what the industrial countries would tolerate and as a result, recognise the limits of the political power of the oil weapon.[6]

Although there seems to be in existence an agreed, but unofficial, tolerance level between producers and consumers, the US contingency plan for the oil fields emphasises the American belief in the political influence of military superiority. In the Gulf, this is especially significant for the regional states who have a weak collective military capability, though recent arms transfers to the region have given some Gulf states a respectable defensive capability.

The immediate reaction to the invasion would be a shoot—out. It is unlikely that a land, sea or air invasion could be undetected; ground—to—air missiles, shore—based missiles and coastal defences, and a blockade of mines in the Straits of Hormuz would inflict serious, possibly unacceptable, damage against the invaders. All the Gulf states, though small in man-power, have lethal hitting power. Even if the occuping force fought its way to the oil fields it would face a cumulative campaign of guerrilla harassment as local forces, who would inevitably be reinforced by Arab armies, began to recover the initiative because of greater numbers, greater fire—power, shorter supply-lines and international opinion. It is no accident that Kuwait, Saudi Arabia and Qatar have steadily reorganised their air defence, coastal and missile systems; some states are forming special forces regiments exclusively for oil field defence.

EMBARGO

If the invasion of Kuwait or Saudi Arabiaaia were achieved it is unlikely that the main aim of the operation—to break an oil embargo—would be successful. The possibility cannot be excluded that the remaining Arab oil states—UAE, Iraq Libya and Algeria—would impose their own embargo in support of their Gulf allies. Though what needs to be assessed is the ability of the latter group to maintain the embargo indefinitely. They are all revenue consumers and the probability is that most oil producers—with the exception of Saudi Arabia Kuwait,

Forty per cent of the world's oil resources are represented by triangle 'targets' on this map. aaa graphics

Qatar and probably ,Libya,—would find themselves in greater difficulties and sooner than the industrial nations. Moreover, a widening of the embargo might provoke those consuming nations who were opponents of US intervention, into supporting the invasion. Further, assuming that the US action were successful the oil fields repaired and the oil was flowing again, could the oil producers resist the imposition of a fixed lower price for oil, by an industrial cartel which is prepared to enforce its decisions by military measures?

TARGETS AND METHOD

Most of the research done on military invasion agrees that such an operation is technically feasible. The likeliest target would be the 400—mile strip from Kuwait to Qatar; this area includes a 40—mile wide strip, 1978 wells grouped in 31 fields and served by nine refineries and 10 ports. This area provides about 40 per cent of OPEC production and has 40 per cent of world resources.

The actual occupation would need to be swift in order to pre-empt any local reaction in the form of either oil-field sabotage or counter-attack. In short invasion would be easy but holding and operating the oil fields would be difficult. Most Arab oil producers have threatened that they would destroy oil wells rather than leave them intact to be operated by an invading force. But it is questionable whether the oil states would carry out the kind of rapid, systematic destruction which the Germans did in Eastern Europe during World War II. The size and complexity of an oil field (on-shore and off-shore) are obstacles to swift destruction. Oil wells would have to be destroyed by blockage or explosion; pumping stations would have to be immobilised; pipe lines, terminals and jetties would have to be put out of action. It is possible that a detachment of special forces working with oil engineers could achieve a successful operation and combine a role of guerrilla warfare.

Therefore the invading force would need the element of surprise. Secondly it would need to be equipped with teams to undertake the massive repair work that might be necessary. For example, in addition to fighting off local forces the invaders may have to deal with a blocked well which would have to be re-drilled or a well fire which could take months to extinguish. Pumping stations could be repaired but this would take time because they are purpose—built and extremely complex. Damaged jetties and terminals could be made to work but again time would be short. For the invasion to be effective, the oil fields would have to be operational in three months. Most analysts agree that the US and the industrial states possess the technical ability for the invasion and oil-field reconstruction. If the target were to be eastern Arabia (Petrolandia in the US contingency plans) the US could mount a sea—borne operation using helicopter—borne marines (air cavalry) as assault troops. Inevitably, the presence of US ships in the Gulf and the build—up of extra troops and weapons would be detected, but could defensive coordination and decision—making by Gulf states be agreed in time? An air-borne operation would be possible but difficult; the occupation would require about 60,000 men and military transport aircraft would need to 'stage' in friendly countries. Overflying rights would have to be obtained and a mounting base would be fundamental because troops need to be transferred from transport aircraft to those from which to parachute. There would also be a need for support services i.e., field medicine, fuel supplies and food. A glance at a map of the Gulf indicates that there is no likely candidate. Iran's role would be significant and although the Shah has stated that he would never agree to an oil embargo has given no indication of how

he might react to an American intervention in the Arab states of the Gulf.

The immediate reaction to the invasion would be a shoot—out. It is unlikely that a land, sea or air invasion could be undetected; ground—to—air missiles, shore—based missiles and coastal defences, and a blockade of mines in the Straits of Hormuz would inflict serious, possibly unacceptable, damage against the invaders. All the Gulf states, though small in man-power, have lethal hitting power. Even if the occuping force fought its way to the oil fields it would face a cumulative campaign of guerrilla harassment as local forces, who would inevitably be reinforced by Arab armies, began to recover the initiative because of greater numbers, greater fire—power, shorter supply-lines and international opinion. It is no accident that Kuwait, Saudi Arabia and Qatar have steadily reorganised their air defence, coastal and missile systems; some states are forming special forces regiments exclusively for oil field defence.

"Any suggestion of U.S. military action to protect oil sources in the Middle East would constitute a flagrant threat to the region.......the defence of the oil economy and oil sources in our region is exclusively the responsibility of the sons of this area. They are capable of defending themselves and their wealth.-"

Kuwait's Minister of State, Abdul Aziz Hussein.

EMBARGO

If the invasion of Kuwait or Saudi Arabia were achieved it is unlikely that the main aim of the operation—to break an oil embargo—would be successful. The possibility cannot be excluded that the remaining Arab oil states—UAE, Iraq Libya and Algeria—would impose their own embargo in support of their Gulf allies. Though what needs to be assessed is the ability of the latter group to maintain the embargo indefinitely. They are all revenue consumers and the probability is that most oil producers—with the exception of Saudi Arabia Kuwait, Qatar and probably ,Libya,—would find themselves in greater difficulties and sooner than the industrial nations. Moreover, a widening of the embargo might provoke those consuming nations who were opponents of US intervention, into supporting the invasion. Further, assuming that the US action were successful the oil fields repaired and the oil was flowing again, could the oil producers resist the imposition of a fixed lower price for oil, by an industrial cartel which is prepared to enforce its decisions by military measures?

The experience of 1973/74 suggests that American intervention in the Gulf would be a unilateral decision and would be strongly opposed by other industrial nations. But this attitude could change if the embargo were prolonged or widened by the involvement of other oil producers.

It has been suggested that domestic opinion in the US could impose constraints on government action but this is to ignore the fact that, for nearly 10 years, American public opinion acquiesced to the military involvement in Vietnam. If the shoe began to pinch in American cities, because of an oil embargo, the US government would be under great pressure to do something, especially if conventional negotiations had failed.

Western military intervention in the Gulf raises the spectre of Russian counter-intervention. But this is to assume that Soviet forces enjoy complete parity in all arms with the USA. This is not so; "... its naval power, while a growing and serious problem, is far weaker than combined allied naval strength in terms of tonnage, firepower, range, access to the sea, experience and seamanship". As a result the Russians would be unlikely to take the same risk as the Americans. Arguably, Soviet forces could be moved into Iraq but would they move further? The record of recent Soviet behaviour in the Middle East indicates that in a acute crisis Moscow would use just enough force to retain credibility with its clients. But it would be unlikely to risk a direct confrontation with American forces. This situation could change if the Soviet Union became a major importer of Gulf oil after 1980.

COLLUSION

Last, but not least, would be the role of the international oil companies. Their cooperation would be essential in any military invasion but even if the operation were successful, the companies would find their long—term position in the oil states untenable because of their collusion.. Some conclusions to be drawn from the contingency plans prepared for the military occupation of oil fields suggest that the operation is technically possibly. Consequently, the US government firmly believes in the indivisibility of energy and security to the extent that armed action is justified when oil shortages become critical;"... we cannot take the position that no matter what the producing countries do, we will acquiesce."

REACTION

Fortunately, the experience of past crises suggest that the military option is a 'worst—case' option. Before that fateful point is reached, the traditional methods of negotiating solutions would be tried and they have not yet been discredited; producers and consumers clearly understand the new relationship of interdependence. Even if negotiations fail, there still remains complex, strategic problems to deter a military operation; the reaction of local forces, guerrilla warfare and economic sabotage, OPEC solidarity, hostile domestic opinion within the invader's country, the uncertainty of Soviet reaction, and the reluctance of the international oil companies to cooperate.

Nevertheless it would be careless to completely dismiss the legitimacy of armed force to preserve national interests; at present it is sufficient that most state understand the diplomatic purpose of threatened armed intervention.

SOURCES

1. Summary of World Broadcasts (SWB), BBC, ME/5648/1 of 24 Oct. 1977
2. Arab Times (Kuwait) 24 October 1977
3. Al-Ittihad (Abu Dhabi) 22 October 1977
4. Force and Middle East Oil, The Round Table, January 1976
5. Strategic Survey 1974, IISS London
6. Oil and Security, Adelphi Papers 136, IISS London
7. Oil: the issue of American intervention Commentary, Jan. 1975
8. Henry Kissinger, 25 June 1976
9. Soviet Policy in the October Middle East War, International Affairs, Oct. 1977 RIIA, London
10. Henry Kissinger, 17 January 1975.

BO105

The BO 105 – Multi-Purpose Helicopter
You can buy a faster helicopter. Bigger, more powerful helicopters are available.
But in the 2.3 ton class, only the light-weight BO 105 gives its pilot full twin-engined performance – performance already proven in five years of world-wide service, day and night, in all weathers and climatic conditions.

Nothing like it
Built to take rough weather, the BO 105 is in the air when other "choppers" are grounded. Special equipment for blind and night flying, auxiliary tanks ensure a range of 685 n.miles, a hingeless rotor provides stability and terrain-following capability even in gale force winds . . . landings on slopes of up to 15°.

BO105

Payload
Don't let the compact exterior fool you. Inside, no matter how the BO 105 is fitted there is room for 5 passengers to sit comfortably and 53 cu.ft. of storage or cargo space. Also equipped with a rescue winch which will support two people or 600 lbs. and a cargo hook for a max. load of 1 ton. Flight characteristics are unaffected by load distribution and the hingeless rotor assures virtually vibration-free flight.

BO105

Safety
Each vital system in the BO 105 has a back-up for emergencies: this helicopter features twin turboshaft engines, a dual hydraulic system, two electrical power systems.
In the event of one system failing, the BO 105, even when fully loaded, will reach its destination safely. But there is also safety in simplicity. The BO 105 rotor system has only 130 parts, as compared with 400 in most other helicopters.

BO105

The record
Since 1972 the BO 105 has been used for transportation to oil platforms in the Gulf of Mexico and the North Sea. It has also been used by the New York Port Authority and the British and Irish lighthouse services.
Pilots rave about the BO 105's all-weather capability, ease of maintenance, manoeuvrability, safety standards and fitting variants.
There's only one BO 105.
Made in Germany.

MBB
Messerschmitt-Bölkow-Blohm GmbH
Helicopter Division
Postfach 80 11 40
D 8000 München 80
Germany

D-409/76E

THE WORLD OF
MANNAI

ENGINEERING

Installation of heavy and mechanical electrical equipment ● Fabrication and machining facilities for structural steel work, piping ● Air conditioning, ventilation systems and maintenance services ● Instrumentation systems ● Thermal insulation and corrosion protection ● Technical services for commissioning and shut down of power, water stations, petrochemical, cement fertiliser and other industrial complexes ● Operation and management of sea-going vessels to provide supply and maintenance services for off-shore oil and gas installations ● Pumping installations including design, supply and repair/over-hauling facilities.

MARKETING

Automotive sales and service ● Heavy construction equipment ● Overland inter-continental transportation with clearing and forwarding services ● General engineering goods and construction materials ● Household appliances and consumer goods.

TRADING

Market intelligence services ● Direct sales against Government tenders ● Sponsorship of international contractors ● Manpower management.

A Complete Service in Qatar

MANNAI TRADING COMPANY : P O Box 76 DOHA QATAR. Tel :26251. Telex :4208 DH. Cable :MANNAI. Codes: BENTLEYS (2nd Phase)

COVER STORY

SHEIKH ZAYED: Poet and Strongman

SHEIKH ZAYED Bin Sultan al Nihayan is a legendary, romantic figure — the Westerners' idea of an Arab sheikh; autocratic, quixotic, rich and dashing.

He has the grace of a Bedouin, the toughness of a hunter and the sensitivity of a poet. He is also cynical, philosophical and merchant to be reckoned with.

All of which makes him particularly suited to his present role as ruler of Abu Dhabi, chief Emir of the Emirates, one of the richest men in the world and one of the most courted.

Politically, he might have been happier to stay poor; the sudden deluge of wealth has given him more headaches than relaxion, created more envious enemies than friends and made a retiring, family man into a world statesman.

Today he has trouble with his brother Emirs, border problems with another state, is criticised for giving not enough aid to one country and to much to another, for being too liberal and too orthodox, for being too Arab and too cosmopolitan. Yet he remains a unique figure in the Gulf — genuinely revered by his people, a kindly philosopher (albeit surrounded by the best sharpshooter guards in Arabia) and a man strong enough for bigger nations to listen to every word he utters in public and in private.

TWO TRIVIALITIES make an indelible impression: The hunting trophies and the flowers. At the huge doors of his private office armed Bedouin stand with falcons on their wrists; inside, stuffed gazelle stud the walls. Everywhere there are plants and flowers and shrubs. Both give a clue to his personality; he is a natural man, a desert hunter who has planted an incredible ten million trees, who reluctantly leaves his horses to receive a Western head of state. He is startlingly simple and direct, both in thinking and in speech. When, a few years ago, he was approached for money to fight Zionism, he didn't have any. In three months he had persuaded Swiss banks to lend him 200 million dollars against collateral that was in those days somewhat dubious; oil and real estate in a hot and dusty corner of the Gulf. Richer nations had made speeches. It was left to Sheikh Zayed to deliver

Today, in a very different setting, he has the same principles, though his problems are closer to home. On the economic recession in the UAE: "It is an extraordinary situation resulting from the dislocation of the efforts of the Monetary Board — due to the misbehaviour of some of its directors. We are now," he said, "dealing with the problem." Corruption? "Yes, there is some. It is difficult to root out. I know we are not strict enough and I do not want to be over-zealous, but if I am informed, I take action. If there is a need for massive punishment, I will not hesitate."

Does he care about the behaviour of some of his ministers abroad? "Of course. Believe me I read everything that is written about me and my ministers in foreign newspapers, good or bad. I have instructed the Ministry of Information not to conceal anything. Some of these reports I check on further and find that they are less than the truth. Some newspapers have a purpose — specifically to mar the image of the Arabs. Other reports, regretfully, are correct. When they are, I take action. I will not accept any abuses of privilege."

What of the other stories — that the UAE has no reserves, and that its enormous wealth is being frittered away by extravagcnce of goverment departments? "How do you expect a reserve in the UAE if six of the emirates have no financial obligations to the financial budget? If there has to be a reserve then Abu Dhabi will have to find it. Abu Dhabi is now providing the expenses of the federal state as well as meeting its obligations to the front-line states. Other emirates are not contributing financially. In addition to the money allocated to them for their projects they draw on the federal budget for other sums."

ARAB OIL'S contributing editor Ahmed Jarallah interviewed Sheikh Zayed in his palace.

The solution? He smiled. "This is for discussion between brothers. I have told them nothing will be left for argument with future generations. All will be resolved in time."

And the immediate problem of oil price rices? "It is more important to preserve and nuture unity among the Arab states than to raise or lower production or prices. These are not empty words. Unity is all-important, and we are united on very many basic essentials. Only the disagreements are exploited and publicised. Of course the price of oil is important — it is important to the welfare of my people — but we are Arabs first, and anyone who forgets that is making a serious error."

But is his independence tenuous, dependent on big brother Saudi Arabia? He laughed. "Not at all, and I must tell you there has been no secret deal with Saudi Arabia over oil prices or border problems. We have a special relationship, of course, but Saudi influence on the UAE is the same as UAE influence on Saudi Arabia. No one unduly influences the other. We believe in cooperation. We will cooperate with anyone who sincerely wishes to be our friend."

From a man with 500 million barrels of oil a year, that is an offer that noone can refuse.

When the x?+*?&?!! hits the fan

Those miles between you and the shore can make the simplest repair or maintenance operation a major problem. Planned maintenance goes a long way towards ensuring all is well but it's the unexpected breakdown when you need the help of the very best repair and maintenance teams backed by nationwide engineering and workshop resources.

The comprehensive services supplied by International Combustion's Post Contract Service Unit are your safeguard against protracted and unnecessary plant outages.

As a leading international manufacturer of process plant, International Combustion supplies equipment for the oil and gas industry both on and off shore. This involvement with your industry gives us the added advantage of offering you the right kind of assistance when you need it most.

Write now for full details of the services available, or telephone the Post Contract Services Sales Manager for advice on your specific requirements.

International Combustion
Post Contract Service Unit
Sinfin Lane, Derby DE2 9GJ, England
Tel 0332 23223 Telex 37581 Telegrams Lopulco, Derby

OIL . AO . JAN . 78 .

U.S.A

'Break Opec' Call by Senator

US SENATOR Daniel Moynihan said in New York that the Organisation of Petroleum Exporting Countries (OPEC) should be broken because it closely resembled an illegal collusion in international trade.

He said that the United States "ought to break that cartel."

Moynihan, former ambassador to India and to the United Nations, said the US paid 45 billion dollars for oil this year.

Moynihan, a member of the Senate Finance Committee's international trade subcommittee, termed OPEC "the nearest thing to an illegal collusion in international trade that we have ever seen."

One way to break it up would be for oil-consuming nations to solicit sealed price quotes from the oil-producing nations, he suggested. He said OPEC prices had a "devastating effect on poor countries."

CIA'S OIL FORECAST WAS WRONG

THE CIA failed to anticipate Saudi Arabia's use of oil as a political weapon in 1973 and expected oil prices to decline after the Egyptian-Israeli war, a Senate committee report has concluded.

The staff study also said that neither the intelligence community nor public sources—the Wall Street Journal, the Petroleum Intelligence Weekly and the London Financial Times—gave extencive coverage to the impact of oil increases on the international economy.

However, the report said that public sources "reported more consistently of changing intentions of the Saudis over the period of April to August 1973, than did the intelligence community."

Responding to the report, the CIA said that the reason for many of its estimates was "that analysts did not anticipate the Yom Kippur war and concluded that, in the absence of war, Saudi Arabia and the other nations would not employ oil as a political weapon."

Blowout

THREE Americans were fined 400 dollars each for negligence in their work on Phillips Petroleum's Bravo oil rig just before the well's blowout last April spilled about 20,000 tons of crude oil into the North Sea.

The attorney general, who assessed the fine, said that a police investigation showed the drilling supervisor, the drilling chief and the drilling chief engineer were negligent in their duties.

Phillips spokesman Haakon Blauw said two of the men were Phillips employees and the third worked for the drilling and maintenance contractors, Moran International,. Oil gushed from the well for eight days before it was capped.

Helicopter Claims Tanker

SALVAGE and insurance claims on the two giant oil-tankers which collided off the South African coast last month may take years to resolve.

One unique aspect complicating the issue is a claim by the helicopter company which landed a skeleton crew on the Venoil shortly after winching 20 men safety from the sea and the burning deck.

J.J.M. van Zyl, chairman of Court Helicopters, is claiming hull rights. The Venoil, he says, was a derelict. Salvagers of derelicts are entitled to possession until paid a reward by the owners.

Venoil Inc., a subsidiary of Bethlehem Steel, say that the matter will be settled "purely in accordance with Admiralty law." South African lawyers say the legal processes could last two years or longer.

Other interested parties in the aftermath of the near-disaster are the South African state oil exploration company, Soekor, whose tugs were the first to take both tankers in tow, and Safmarine, the shipping company awarded the salvage contract.

The tankers were on lease to Gulf Oil.

MORE CARS TO USE LESS FUEL

US GASOLINE consumption is levelling off for the first time since the Arab oil embargo, supporting predictions that Americans will buy more automobiles in the 1980s but will burn less gasoline in them. Two respected research groups report that gasoline demand in 1977 has increased less than 3 per cent from the demand in 1976.

"I believe gasoline prices are getting into the area where high prices are discouraging use," said Dan Lundberg, publisher of the Los Angeles-based Lundberg Letter, a weekly compilation of gasoline statistics. According to Lundberg's survey of gasoline sales in every state, gasoline demand increased during the first nine months of 1977by only 2.2 per cent.

The American Petroleum Institute, an industry group which monitors gasoline shipments from refineries, said that deliveries increased by 2.6 per cent in 1977. That compares with an increase of 5.1 per cent in 1976, and an average 3.7 per cent increase since 1974.

Carl Gustin, a spokesman for the US Department of Energy, said federal officials were "pleased that these surveys show a slowing in the rate of growth of gasoline consumption. It may be too early to say that this represents a longternd, however.

"We will be watching the situation closely in light of the President's 1985 goal of reducing gasoline consumption 10 per cent below early 1977 levels."

But John Lichtblau, director of an oil economics consulting firm which surprised many observers last month by predicting that gasoline consumption would decline through the 1980s, said

the trend apparently already is beginning.

"Our expectation is that the increase in 1978 will be below 3 per cent, maybe less than 2 per cent," Lichtblau said. Last month, Lichtblau's Petroleum Industry Research Foundation predicted that gasoline consumption in the 1980s would fall below the 1977 level despite a 40 per cent boost in the number of automobiles. The decrease would occur because the new, more fuel-efficient cars would replace "gas guzzlers" now on the road, the Group said.

Lundberg agreed that improved fuel efficiency was a prime factor, but he said the price of gasoline was equally important. Full-service regular gasoline costs an average of 60 cents per gallon now, up three cents from the same time last year.

"You have a couple of million families with two cars who have to make ends meet," he said. - A.P.

SENATE GAS PLAN COMPROMISE

A HANDFUL of House-Senate energy negotiators have opened a cmpaign to obtain Congressional support for a natural-gas compromise that they hope will get President Carter's stalled energy plan moving.

Senators who helped work out the proposal were seeking the backing of other members of a congressional conference committee which has been deadlocked for weeks on the natural-gas issue.

The plan would continue federal price controls on natural gas indefinitely, but allow prices to move more than double over the next six years.

Meanwhile, two Democrats, Sen. Bennett Johnston of Louisiana and Sen. Wendell Ford of Kentucky, attempting to break a deadlock among 18 Senate conferees, who have repeatedly tied 9 to 9 on attempts to end the impasse.

Sen. Ford and Sen. Johnston were among 10 conferees who negotiated behind closed doors for nearly 14 hours and came up with the compromise which must now win the formal approval of the full 43-member commmittee.

A key member, Sen. Henry Jackson, chairman of the Senate Energy Committee, has rejected the proposal as too generous to the oil and gas industry. - AP

OMAN

Warship Sent to Oil-Rig

An American oil rig has touched off a territorial dispute between Oman and Ras al-Khaimah. The rig, operated by the Zapata Oil Company, struck oil off a coastal strip claimed by both states. Zapata are working for Ras al-Khaimah. Oman's Sultan Qaboos reportedly ordered a warship to visit the rig and formally warn the company that they were drilling in his territory.

A Foreign Affairs official said, however, that Oman "had no intention of using force," but complained that Ras al-Khaimah had moved military units into the area.

The oil find is expected to produce 2500 bd later this year. The exploration consortium includes American, Canadian, Italian, German and Australian interests.

Saudi Arabia is believed to have been asked to mediate.

SOLAR ENERGY

SALT STORES SOLAR HEAT

GENERAL Electric Co. scientists have found a cheap way to use a common salt to store solar energy. The discovery, still in the laboratory stage, "promises to be low in cost and compact enough to fit conveniently in the basement of most homes and commercial buildings," the company says. Most solar energy systems employ tanks of water or bins of rock to retain heat from the sun for use when the sky is dark or overcast. Scientists have known for decades that for its volume Clauber's salt, a form of sodium sulphate, holds many times more heat than rock or water, but a practical method for using the salt had never been devised. GE scientists have found that when put in slowly revolving drums containing special seed crystals, the salt becomes a good heat retainer: It turns into a liquid as it absorbs the energy and freezes into crystals again when the energy later is released.

NUCLEAR ENERGY CHEAPER - FRENCH

MARCEL Boiteux, head of Electricite De France (EDF) said that despite various delays in the nuclear programme, nuclear power will account for 52 per cent of the country's electricity requirements in 1985, compared with 11.5 per cent in 1978.

In an interview with Techniques De L Energie, a specialized monthly magazine, Boiteax remarked that at current prices, the cost of nuclear-generated kilowatt hour in 1985 would be 9 centimes, compared with 13.5 centimes for fuel and 12.2 centimes for coal.

The EDF executive said that although the cost of financing the nuclear power programe weighed heavily on the utility, it was not as heavy for the country.

US - SOVIET RESEARCH

US and Soviet officials have signed a protocol calling for further development and expansion of a joint research programe on energy. Among subjects discussed at a three-day US Soviet meeting climaxed by the signing were forecasting of energy needs, methods of production, increasing production from oil and natural gasfields, air pollution control systems, solar energy, coal production and magnetohydro-dynamics, a process for producing electricity directly for thermal energy.

TWO MEGA SUN STATIONS

A DECISION has been taken to build a two megawatt pilot solar power station at Targassonne, in southern France and official confirmation on the choice of the site is expected to be made shortly, according to informed sources.

Construction of the 'Themis' Power Station is expected to take three years and involve an investment of almost 100 million francs.

The plant will use the thermodynamic conversion technique whereby sunlight is concentrated by over 17,000 square metres of mirrors on a boiler to produce steam.

KUWAIT

OUTPUT UP 1 p.c.

KUWAIT'S oil production was 1.84 million barrels per day during the first six month of 1977, up by 1.2 per cent from the production of 1.82 million bpd during the first half of 1976.

The monthly News Bulletin of OAPEC published figures showing that production of Kuwait Oil Company and the Al Wafra Oil company increased during the first half of 1977 although the production of the Arabian Oil Company dropped by 33 per cent.

The figures also indicated that total oil production during January 1977 was 1.4 mbpd, rose to 2.2 mbpd during March and dropped to 1.7 mbpd in June.

Oil sources said that the rise in production during March this year may have been the result of the sudden cold wave that hit Europe and the United States, depleting stocks that had been accumulated in the months before the OPEC meeting in Qatar last December.

The small rise in the overall production figures of the first six months of 1976 and 1977 is also indicative of Kuwait's often-stated policy to conserve its oil.

Production of Al Wafra Oil Company also rose to 90,791 bpd during 1977, Al Wafra, formerly known as American Independent Oil Company, was nationalised by the Kuwait government last September. The government has said that the takeover will not affect production, and all contractual commitments to the customers of Aminoil will be met.

The average production of AOC dropped by 33 per cent from 124,226 bpd during the first half of 1976 to 83,142 the first half of 1977.

FOREIGN STOCKS

A special committee formed by the Crown Prince and Prime Minister Jaber Al Ahmed is looking into the possibility of allowing the shares of foreign-owned companies to be traded on the Kuwait stock exchange.

At the moment, only companies having a majority Kuwaiti interest can have their shares traded in stock market. There are presently 33 companies listed on the exchange.

KOC'S AHMED JAAFAR

USING IT, SAVING IT

Full utilisation of Kuwait's oil resources by the end of the 1970s is the main aim of the country's oil planners, according to Oil Ministry Undersecretary Mahamoud Al Adasani.

Writing in the introduction of "Kuwait Oil - Facts and Figures" a new booklet issued by the Oil Ministry, Adasani said the bulk of the efforts are being concentrated on the expansion of petroleum and oil-related industrialisation projects.

Natural gas is to be fully used by the end of the 1970s, and the other projects such as the aromatics complex, the petrochemicals complex and the bitumen project will be implemented "in the near future" Adasani writes.

At the same time, Kuwait will continue to explore for the discovery of more oilfields "to increase the state's oil reserves and identify its production capacities in the long run."

But, Adasani continues, emphasis will also be put on the conservation of oil so that it may be made to last as long as possible.

Transporting oil is another factor, and the Kuwait government will be seeking to acquire new oil tankers so that it may be able to produce and move its own oil to its customers.

10 CENT DISCOUNT

Kuwait has offered a 10-cent per barrel discount to foreign companies on contracted liftings. Mohammad Nussair of the Ministry for Oil said that while Kuwait was abiding by the 12.37 dollars per barrel price agreed by OPEC, foreign companies—principally British Petroleum—had said they could not bind themselves to lift the quantities contracted for. Consequently the 10 cent discount was proposed. Nussair added that new contracts are to be drawn up shortly.

KD 7 m BONDS.

The Kuwait Investment Co. has announced that the signing of a subscription agreement for 7 million Kuwaiti Dinars of bonds due 1987 for Petroleos Mexicanos (PEMEX) took place in Kuwait.

The issue was fixed at 8.5 pc per annum payable annually and was priced at par, Kuwait Investment Co., the lead Manager, said. The issue is redeemable in 1982 at the option of PEMEX or the holders, it added.

LIBYA

EGYPTIANS LEAVE

SERIOUS manpower shortages in the Libyan oil fields are threatening production. The shortages, particularly in the maintainance and transportation field, result from the exodus of Egyptian workers following Libya's criticism of President Sadat.

Last year there were an estimated 250,000 Egyptians working in the country. 120,000 left after the border clashes in July, and another 15,000 have returned home since the Sadat-Begin meeting in Jerusalem. Long queues at the borders are growing daily.

Recruitment drives in Pakistan and Turkey are not producing sufficient replacements either in quantity or quality. Many of the Egyptians are highly-skilled and managerial class.

OVERTAKEN

Saudi Arabia has surpassed Libya as the major supplier of petroleum to West Germany, according to government figures.

A report from the Economics Ministry showed the Saudis shipped 15.9 million tons of petroleum to West Germany in the first nine months of this year compared with 14.9 million tons from Libya.

The Libyan total was the same as for the first nine months of 1976, but the Saudi contribution was up from the 13.8 million tons shipped during the same period last year, the Ministry said.

If you think Middle East travel is a problem, forget about it.

As the world's largest travel agents, Thomas Cook are ideally placed to sort out all your Middle East travel problems.

As well as already having offices in Lebanon, Iraq, Egypt, Bahrain and Kuwait, we're planning to open shortly in Saudi Arabia and elsewhere in the Middle East.

Travellers cheques, hotel booking, group travel, passports, visas: at Thomas Cook we offer every travel service you could ever possibly need.

That way, you can get on with what you're good at. And leave the rest to us.

Thomas Cook

The trusted name in travel. Everywhere.

BRITAIN

Lord Barnetson

SYMPATHY FOR OILMEN

A CALL for more recognition for the oil industry and for the oil industry to perform its public relations responsibilities better came from Lord Barnetson, President of the United Kingdom's Advertising Association, before 2000 oilmen at the Oil Industries Club's 41st Annual Dinner in London.

He declared: "It's high time that the oil industry had a word of recognition from Public and Politicians alike. In my own profession (journalism) over many generations, we know what it's like to live, at best, with the faintest of faint praise, and equally in a disagreeable climate of public misunderstanding vilification and abuse."

The oil industry, he said, off and on down the long years had to operate in undercurrents of envy, suspicion and resentment.

"You have never been very far away from smears about power politics and devious diplomacy. You have had to live with the foolish and strident voices of those who are disposed to give you little credit for self-restraint and social responsibility. You have had to deal with those who perversely refuse to comprehend that this is an area of high risk investment and penal taxation."

Lord Barnetson said that like the press the oil industry seemed to operate in an atmosphere of verbal halitosis, to the point where it had almost become a way of life.

IN THE BLACK

BRITAIN'S trade with OPEC members was in surplus in the first nine months of 1977, the Secretary of State for Trade Edmund Dell told the Association of Building Component Manufacturers in London. Exports to the Middle East covered 90 per cent of imports, having doubled in less than four years. In 1974, exports covered only 30 per cent of imports from the Middle East and OPEC. "Today, the position is very different, partly because of our own oil production from the North Sea and partly because of a substantial growth in exports."

SIX YEARS EARLY

OCCIDENTAL Petroleum Corp. has confirmed reports in London that the company plans to repay six years ahead of schedule its 150 million dollars loan raised for development of its Piper Field in the North Sea. The company will have repaid almost all the loan by the end of this month.

TANKER BUSINESS BRIGHTER

A SUBSTANTIAL fall in idle tanker tonnage is reported by London shipbrokers John Jacobs. Last month 45 tankers, totalling 7.7 million dwt, were brought back into use, leaving 286 tankers totalling 30.16 million dwt laid up.

NEW LABORATORY

SHELL OIL CO., plans to build a toxicology laboratory at Shell Development Co's Westhollow Research Centre, to expand its research on the health safety and environmental effects of Shell-produced chemicals. Shell said its toxicological research is expected to more than double when the laboratory opens in January 1980.

ARAB OIL

ADVERTISING RATES (Kuwaiti Dinar)

COLOUR	
Back cover	KD 300
Inside cover	275
Full page	250
Half page	145
BLACK & WHITE	
Full page	200
Half page	120
Quarter page	75

Publishing date: 1st of each month
Closing date for colour: One month before publication
Closing date for B&W: 14 days before publication
Closing date for cancellation of order: 14 days before publication
Insertions by prior arrangement
Printing process: Offset
Overall page size: 21.8 x 28cms
Print area of page: 19.3 x 24.9 cms
Width of single column: 5.5cms
Width of two columns: 12 cms
Width of three columns: 19.3 cms

ANNUAL SUBSCRIPTION RATES (12 issues): KD 3
Plus postage KD 3 for postage to USA, Europe, South East Asia

ADVERTISING REPRESENTATIVES

U.K.: Overseas Publicity Ltd. 214, Oxford Street, London W.1N OEA, Tel: 01 636 8296 Telex: 24924
U.S.A.: Inta Advertising, Inc., 1560 Broadway, New York N.Y. 10036, Tel: (212) 575 9292.
France: Sodepar, 12 Rue Tronchet, 75008, Paris, Tel: 742 48 23, Telex: 280766
Italy: Publicitas, Via E. Filiberto 4, 20149 Milano, Tel: 348541/316051, Telex: 37239
Spain: Emprosa, Avda Generalisimo 96, Madrid 16, Tel: 4586137, Cable: OGARRIO
Bahrain: Awal Advertising Agency:, Box 693, Al-Fateh Building, Tel: 50004, Telex AAA GJ

ARAB OIL

OIL. AO. JAN.78.

AN ARAB OIL ANALYSIS

RUSSIAN OIL: How much is there?

by JAMES RUSSELL

THE Soviet Union has just celebrated the 60th anniversary of the creation of the Soviet State, and among many achievements frequently referred to in speeches by Soviet leaders is the undeniable fact that the Soviet Union today produces more oil than any other country in the world. It is also stressed that, because the economic development of the European socialist countries is fully planned, not only on an annual basis but over five-year and even 20-year periods, there is no possibility of either the Soviet Union or Comecon as a whole running into oil supply problems such as those encountered in the capitalist world.

In the early 1970's there was even talk in western energy circles of possible large-scale exports of Soviet oil to the rest of the world as the mighty newly found reserves of western Siberia were developed and as the enormous potential oil-bearing areas further to the East opened up. By the mid 1970's, however, it was becoming clear that all was not quite as encouraging in this respect as had been made out, and that there was a possibility that the modest oil imports which Comecon was already making from non-Soviet sources might increase substantially. In recent months speculation in this area has been greatly heightened following the publication by the CIA of a study on Soviet oil production prospects which predicted that, by the mid 1980's, the combined import requirements of the Soviet Union and its East European allies might reach as much as two hundred million tons annually and that there would be no Soviet oil available for export to the rest of the world.

That there should exist such a diversity of views is in large measure due to the scarcity of statistical material in Soviet publications resulting from the treatment for example, of Soviet oil reserves as a state secret. However, sufficient published data exists from which it is possible to draw a somewhat different conclusion about likely developments in the Soviet and East European oil situation over the next decade than that described by the CIA, although the main differences lie in the timing and magnitude of the evolutionary changes rather than in the general trends affecting the supply and demand picture.

If one examines the smaller East European countries, - Bulgaria, Czechoslovakia, Hungary, East Germany, Poland and Romania - with the exception of the last named and, to a certain extent Hungary, they all have a common position when it comes to oil reserves and production. Both are negligible and these countries rely almost entirely upon imports, mainly from the Soviet Union. Hungary produces two million tons of oil a year but imports over eight million.

Romania, however, has an annual production of around fifteen million tons, and although it imports some 5/6 million tons of crude annually it also exports about the same volume of products, and in any case does not import any Soviet oil. In 1976 these countries required some 90 million tons of oil in total, and with oil consumption rates increasing at between some 3 per cent and 8 per cent per annum they could be needing nearly 120 million tons domestically. Whereas Romania's economy has traditionally been based upon energy from hydrocarbons, both oil and natural gas, the other East European countries have derived most of their energy from domestic coal resources, although even here the reserves picture is not all that bright except in Poland where there are still substantial reserves of hard coal, and where production is increasing to keep pace with Poland's standing as as net energy exporter.

Considerable investment has been made over the last 10-15 years in the substitution of coal by hydrocarbons in all these countries, and coal's share in the fuels energy balance has fallen from for example, over 95 per cent in Poland and the GDR in 1960 to as little as 40 per cent in the case of Bulgaria and Hungary today. At the same time, however, these countries have become increasingly dependent upon imported energy which now makes up over 25 per cent of their overall energy requirements.

Again, Soviet supplies have always accounted for almost the total oil import requirements although, in recent years, this percentage has started to decline. As long ago as the late 1960's, the Soviet Union was urging its East European allies to take steps to obtain access to supplies of oil from outside Comecon, having indicated to them that the cost of Soviet supplies would have to rise and that these would need investment by the other Comecon countries if they were to be maintained or increased in line with projected requirements. East European investment in the development of Soviet energy projects has accordingly increased substantially in recent years, but teams of East European oil specialists have also been very active in many other countries in the world, where joint exploration ventures have proliferated both off-shore and on-shore.

So far, these ventures appear to have met with relatively little success although, in the case of the north Rumailah oil fields in Iraq, substantial Soviet investment over the past decade is now being repaid by supplies of crude oil approaching eight million tons annually.

Looking ahead to the mid 1980's it seems likely, even taking into account intensive energy saving measures introduced into all these countries after 1973, that they will need to import at least 130 million tons of oil annually if their economic growth rates are not to be restrained. They will of course continue to depend for a large part of this requirement upon Soviet oil, since not only are many of their refineries connected to the "Comecon pipeline", which has an annual throughput in excess of 50 million tons, but they are also chronically short of hard currency with which to pay for supplies from elsewhere.

Payment for Soviet oil supplies can be made in a number of different ways that do not involve hard currency, and the price to them of Soviet oil is based upon the previous five years' average oil prices so that, at least while global oil prices are increasing, the apparent cost to the Soviet Union's Comecon clients is always going to be less than the price which these countries would have to pay on the world market. Quantities to be supplied by the Soviet Union are negotiated within Comecon and fixed for the five-year plan period in question. Volumes in addition to those agreed upon have to be obtained from elsewhere, and for hard currency, or for whatever other form of compensation can be negotiated.

There is no doubt that the countries of Eastern Europe can put together attractive scientific and technological or industrial and commercial co-operation packages for example involving the construction of docks, power stations, dams, desalination units etc., which could be repaid in oil by producing countries, although there must be a limit to the amount of such "soft currency" requirements for which these countries would be prepared to release their oil, when they can obtain hard currency or the higher quality goods and services available from the most advanced industrialised countries outside Comecon.

While the oil supply and demand situation for the smaller East European countries is relatively clear cut and unlikely to deviate widely from the projections given above, that for the Soviet Union itself is far less clear. Not only is the likely 1980 position now open to doubt, but that for 1985 is virtually impossible to forecast with any probability of being accurate.

The CIA report published in April this year suggested that Soviet oil production, now running at 550 million tons per annum, would peak during the next few years, and possibly as early as 1978, at around 580 million tons, and that thereafter, there would be a sharp decline. The ultimate result of this would be that by 1985 the Soviet Union and its allies would require between 3.25 and 4.5 million b/d of imports from the rest of the world. These predictions should be seen against the background of current Soviet net oil exports which are running at around 140 million tonnes, and while over half of this goes to other Comecon countries, some 65 million tons finds its way to hard currency markets and earns between 5 and 6 billion dollars or over 45 per cent of the Soviet Union's total hard currency earnings.

The Soviet oil production target for 1980 is in the range of 620-640 million tons, and this range has not only been incorporated in the Five-year plan for 1976-80 but has subsequently been re-

JAMES RUSSELL is an executive of Shell and one of the foremost authorities on Soviet and East European energy.

Oilmen in Siberia: Equipment is a problem

affirmed by a number of top Soviet energy and planning officials and, as recently as October 1977, by the new Minister for the Oil Industry, Mr. Maltsev. The annual plan for 1976 was met, as has been that for the first nine months of 1977, although there are, perhaps, a few indications that the current annual plan may be marginally under-fulfilled.

The root cause of Soviet oil production problems is logistical, primarily connected with the fact that virtually all growth in production is now coming from relatively recently discovered deposits in western Siberia. Here, not only has all infrastructure to be built from scratch under extremely adverse geographical and climatic conditions but production is increasingly distant from the main consuming areas and export points which are situated in the west of the country, so that the construction of very lengthy and costly pipelines is necessary.

The Samotlor field in the Tyumen region is one of the largest in the world and is already producing around 130 million tons annually, but production teams are reportedly encountering a sharply rising water cut, the result, it is claimed, of the excessive use of high pressure water flooding techniques occasioned by the need to maximise west Siberian production to compensate for declining production rates in the older oil producing areas of the Volga-Urals region, Beku etc. Furthermore, so much of the Soviet oil drilling effort has been directed towards production as opposed to exploration wells that, according to the CIA report, insufficient new oil has been discovered in recent years to allow the current rapid rate of exploitation of western Siberia to be maintained.

Not only will the decline in production in the older fields accelerate but the Soviet oil industry will be unable to cope with the increasing volume of liquids which wil have to be pumped in the new fields in order to recover a given amount of oil since, the argument goes, they do not have sufficient number of submersible pumps with adequate throughput. All of this, coupled with shortfalls in bit production, drill pipe, oil treatment plants and large diameter pipeline must add up, so it is predicted, to a serious under-fulfilment of the 1980 target, and an increasing inability to meet the import requirements of the other European Comecon countries, let alone to maintain an export surplus for the acquisition of hard currency. By the mid 1980's, therefore, not only would Comecon's net oil export capability be eliminated, but there would have to be found some 12-15 billion dollars to finance a level of oil imports which would be vital for the maintenance of a rate of economic growth commensurate with the longer-term plans and, indeed, consumer aspirations for steadily improving standards of living.

Few people would disagree that the problems facing the Soviet oil industry are daunting both in number and in kind, but perhaps insufficient credit is given either to the industry's already substantial achievements over the past twenty years or to the ability of Soviet specialists both to learn from past mistakes and to recognise and provide for the problems confronting them. However, even if Soviet oil production in 1980 reached only 600 million tons, this would probably still allow the net export of over 120 million tons, and if production in 1985 were no higher than in 1980, the Soviet Union itself would probably still be a net oil exporter although it would then only be able to contribute a few tens of millions of tons towards the overall Comecon import requirements of around 130 million tons. There would, in this case, be none available to export for hard currency earnings.

On the evidence available today, it seems as though this is rather too gloomy a picture, and that, in the mid 1980's, the Comecon countries, although they will be importing substantially more oil from elsewhere than they do today, will not be in such a desperate plight as would be occasioned by a need to import as much as two hundred million tons. Indeed it is extremely difficult to see how they could ever finance such an import level, given an apparent current indebtedness to non-Comecon financial circles of some 40 billion dollars, and annual deficits in their trade with the main hard currency areas. There will remain considerable pressure on Comecon both to conserve oil domestically and to acquire supplies for payment other than in hard currency, and the Soviet Union will have every incentive to maximise both oil production, and its export for hard currency. Comecon's heavy industries will need to accelerate the use of natural gas and, subsequently, nuclear energy in order to ease the burden on oil consumption, particularly in the area of electrical generation.

In the event that major new oil fields are discovered in the Soviet Union, during the next few years, particularly if these can easily be tied in with existing oil transport facilities, the Comecon supply position will look a great deal brighter, although it must be stressed that Soviet officials themselves certainly seem to remain confident.

Overall, Comecon does not have an energy crisis as such, although there are clearly substantial oil supply problems which, if not resolved, might have a serious impact upon Comecon's economic development in the early 1980's. It seems too early, however, to dismiss the possibility that the Soviet energy industries can overcome these problems, either on their own or with western assistance.

US Geologists Report

A TEAM of geologists from the US Department of interior's geological survey concludes, after study data published by the Russians, that there may be as much as 48 billion barrels of oil and 300 trillion cubic feet of gas still to be discovered in the West Siberian basin of the Soviet Union.

The study, officials say, doesn't contradict earlier predictions by the Central Intelligence Agency that the Soviet Union, which currently exports about three million barrels of oil a day, could become an oil exporter by 1985.

"There isn't any conflict," says Charles Masters, who directed the study. "We were looking at the amount of oil and gas that may exist. The CIA was addressing the production capability".

Masters said much of the petroleum-rich basin is under water during the summer and covered by ice in the winter. "There's lots of oil there, but recovery could be difficult" he said.

One of the oil fields in the basin, the Samotlor, produced about 2.2 million barrels a day, or 20 pc of total Soviet oil output in 1976. The Soviets produce about 11 million barrels of oil a day and consume some 8 million barrels of oil daily. Most of their exported oil goes to eastern European allies.

The conclusions of the report are based on a study of more than 100 scientific papers and articles published by the Soviets on the West Siberian basin.

ARE THE ARABS JUST HELPING THEIR OWN?

By David Housego

The wealth accumulated by the oil producer states has given developing nations their first opportunity to test their solidarity in carrying out the ideals of the New Economic Order. How far has OPEC put its cash behind the common cause?

The Secretariat of the UN conference on Trade and Development (UNCTAD) made an effort to find out. Its report on OPEC aid flows - the first, it claims, to be largely based on information supplied by OPEC states and the multilateral institutions they have supported - has angered Arab members of the organisation.

The report finds that OPEC members have given a larger proportion of their GNP in aid than OECD countries. But by implication it is highly critical that the volume of OPEC aid has fallen well short of compensating other developing countries for the increase in their oil bills, and that most of it has been directed towards Arab or Moslem countries.

The first sore point that the report touches on is its suggestion that ways should be explored "for OPEC countries to cover in full or in part the increased oil bill of the oil importing countries on a non-concessional, but long term basis."

It makes this recommendation after concluding that the 5.2 bn. dollars that OPEC members actually disbursed in 1974 covered less than one-third of the additional financing requirements of developing nations caused by the increase in oil prices. It says that requirements at 12 bn. dollars for 1974, a year in which the combined current account deficits of developing countries worsened by 20 bn. dollars to 32 bn. dollars.

COMMITMENTS

The second area in which it probes Arab sensitivities is in its discussions on bilateral concessional aid. It says that bilateral aid accounted for 88 per cent of disbursements by OPEC states in both 1974 and 1975 (the report covers the 30-month period from January, 1973, to June, 1975).

In 1974 non-Arab countries received less than 800m. dollars of the 3 bn. dollars distributed in concessional bilateral aid and in the first half of 1975 less than 300m. dollars of the 1.5 bn. dollars that was distributed. In contrast the reports shows that Oman, an Arab oil-exporting country, received 123m. dollars in 1974 and 52m. dollars in the first half of 1975.

The concentration of aid on Arab states, the report indicates, has been at the expense of the "most seriously affected" (MSA) countries. Only 23 of the 42 MSAs as defined by the UK received bilateral assistance from OPEC states. Of the total sum distributed to this group, Egypt got about half in 1974 and 64 per cent in the first half of 1975.

Though a smaller amount of funds was channelled through multilateral institutions (about 12 per cent of OPEC aid flows), less than a tenth went to Arab countries. The moral that the report implicitly draws from this is that more OPEC aid should be distributed on a multilateral basis.

Initially the report puts the scale of OPEC aid in a favourable light. It shows that both commitments and disbursements by OPEC states between 1973 and 1974 rose far faster than those of the industrialised nations of the OECD. In 1974 OPEC states committed over 7 bn. dollars concessional aid, or about half that of the OECD members. The combined GNP of the OECD states is about 19 times that of the ten OPEC states covered in the report.

UNCTAD warns however that figures on commitments by OPEC states should be treated warily. The lag in spending the money is great. Commitments for programmes spread over several years are "lumpy" and tend to inflate the commitment value at the outset of a programme. Thirdly commitments made in the wake of the oil price increase could not be expected to continue at the same level when the surpluses of the producer states began to dwindle.

None the less the report makes the point that in 1974 seven of the 10 OPEC states covered had reached the UN target of distributing 0.7 per cent of their GNP in aid. Qatar stood out as the largest donor on this basis, contributing 10 per cent of its GNP in aid in 1974.

Overall the OECD states gave 0.33 per cent of their GNP in 1974 in concessional aid compared with 1.9 per cent for the 10 OPEC states.

In absolute terms the largest concessional donors during the 30-month period were Kuwait (1,654 bn. dollars in disbursements) and Saudi Arabia (1,479 bn. dollars.)

The report includes a country by country analysis of the aid programmes of the 10 OPEC states. This shows that apart from the pro-Arab bias among Arab donors, OPEC members like Iran directed their assistance to countries strategically or economically important to them, such as Afghanistan or Pakistan, Venezuela's aid is likewise concentrated in South America.

NO says the Fund

The UN report brought a sharp and swift response. OPEC Special Fund's Ibrahim Shihata wrote in a letter to the Financial Times: "In 1976, OPEC countries occupied the top six ranks among all donor countries as regards the proportion of foreign aid to Gross National Product. While Western countries had hardly achieved in 1974-76 the disbursement - GNP ratio of 0.33 per cent, OPEC countries as a group reached the 2.7 per cent ratio, with the major donors exceeding 10 per cent of their GNP. Furthermore, such percentages could rightly be expressed in higher figures if one considers the nature of oil revenues which represent a monetary form of a depleting national resource, not a net income of the donor countries.

"The grant element of OPEC concessional flows is estimated at 81.3 per cent in 1974, 73.6per cent in 1975, and 78.7 per cent in 1976. In fact it is higher than such percentages indicate, considering that all OPEC aid is untied to source."

TECHNOLOGY

REG-TRANS-COMM. AO. JAN. 78

ASRY-Opec's Concorde

DOINA THOMAS presents the financial thinking behind OPEC's generous gift to Bahrain.

THE FIRST major pan Arab industrial venture the Arab Shipbuilding and Repair Yard Company, is now in business.

In the coming year the dry-dock expects to service around forty tankers and an assortment of other oil marine devices that are plying their trade in the Gulf. And during 1978 the yard's technical abilities are expected to progress from simple hull scraping, repainting and minor mechanical repairs to the full range of services offered by the world's older dry-dock facilities. It is not, however, expected to make money, not in 1978 and not for an indefinite number of years to come.

When Shaikh Ahmed Zaki Yamani, Saudi Arabian Oil Minister, first sponsored the idea of an Arab owned dry-dock sited on Arab territory way back in the late 1960's the commercial prospects for such a project seemed excellent. This added to the attractiveness of what was equally a political project.

The idea of an Arab dry-dock was born shortly after the founding of the Organisation of Arab Petroleum Exporting states by Saudi Arabia, Kuwait and Libya in 1968. The Arab oil producers were interested in moving further downstream in the management of their major resource, hydrocarbons in the form of oil.

The closure of the Suez Canal, it seemed, would lead inevitably to the construction of ever more and ever bigger crude oil carriers (VLCC's) and there were few yards that could maintain or repair them. At the end of the 1960s there were no major dry dock facilities on the major oil routes, the Arabian Gulf to Japan, and the Arabian Gulf to Europe.

In the beginning the plan was to site the yard at Damman on the Eastern coast of Saudi Arabia. The argument was that Saudi Arabia had both the largest population and, as the largest oil exporter of the region, would have the highest number of VLCC's calling at its oil terminals. After further viability studies, however, Bahrain was put forward as a better site, the main reasons for the switch being the better hydrography of Bahrain's island, its pool of skilled labour and the greater ease of operating there.

Saudi Arabia, which has always been a close friend of the tiny island Emirate, and has always taken a generous interest in its progress and stability, was in favour of the idea. The decision to site the yard in Bahrain was finally taken in 1972 and was followed by the departure of Dubai from OAPEC. Speculation at the time suggested this was because Dubai had wanted to be host to the project, an idea that was reinforced by Dubai's construction of a three berth dry-dock complex.

The shipping picture has radically changed in the six years it took the seven OAPEC shareholders to finalise the project, find managers, appoint consultants and a main contractor. Now, while some 700 or so VLCC's pass through the Straits of Hormuz annually, there is a dry dock facility at Singapore on the busy Arabian Gulf - Japan route, and there is a great deal more VLCC dry dock capacity along Europe's coastline. In addition to Dubai's immense project, Iran too is building a facility at Bandar Abbas - but this, it is thought, will be largely for military use. And finally the bottom dropped out of the tanker market and showed little sign of coming back at the end of 1977.

But there were a multitude of reasons for the creation of ASRY other than immediate commercial viability. There was a growing Arab owned tanker fleet to service which during 1977 had reached a capacity of around 10 million deadweight tonnes. ASRY, too, provided an opportunity for the Arab states to invest their oil revenues for social and economic development on a co-operative basis. It would provide the opportunity of skilled training for Arab nationals and so create a pool of skilled and specialised Arab manpower. And for Bahrain specifically it would broaden its economic base and diversify its sources of income - Bahrain's oil revenues from presently known resources are expected to peak during 1977; present reserves are estimated to be sufficient for another 20 years.

The steadily escalating cost of construction for the dry-dock has also put the date for profitable operation further into the future. The final capitalization of the project was raised to 340 million dollars in the summer of 1977. The capital is fully paid up with five of the seven shareholders taking up 18.84 per cent each - Saudi Arabia, Kuwait, the UAE, Qatar and Bahrain, and the other two shareholders, Iraq and the Libyan Jamahariyah, having nominal shareholdings of 4.7 and 1.1 per cent respectively. (Egypt was briefly a shareholder in the project but dropped out in the course of 1977).

This sum, interest free, is expected to be sufficient to cover the construction of the yard (virtually complete at the end of 1977) and its working capital requirements as well as the expected deficit for 1978. ASRY chairman Majid al Jishi, Bahrain's Minister of Works, Power and Water, has said that the working capital needs and probable deficit for 1978 would be around 25 million dollars and he expected the level of subsidy to decrease during coming years. He affirmed that all shareholders were prepared to put up any further money ASRY might need in the future.

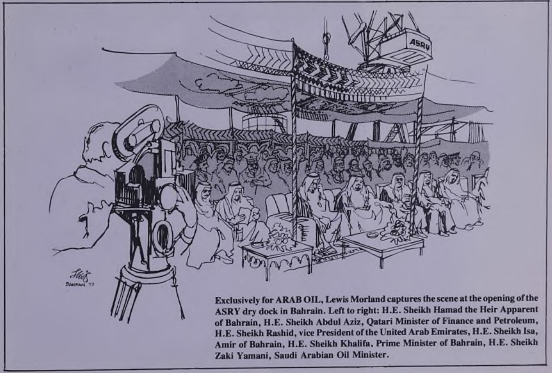
A crucial factor for the profitability of any dry-dock, and particularly a single berth dock such as ASRY, is the speed with which vessels can be turned round. Shortening time spent in the dock enables the yard to take in more ships and usually each vessel pays five times as much for the first day in dock as for subsequent days. "We really need a second dock," says ASRY general manager Antonio Machado Lopes," actual demand in the Gulf is sufficient to occupy two or three docks." The decision on whether or not to build a second dock should be taken in the course of 1978 and, given that the original yard was constructed with a view to expansion, the expected cost is of the order of 50/60 million dollars.

Some elementary sums, done on the basis of European charges for dry docking 300,000 dwt tankers alone, and assuming that ASRY is operating two docks each taking in 60 tankers a year (ASRY's ultimate goal) show that it will take around 30 years for the company to repay its initial capital. Should ASRY remain a one dock operation (unlikely) it will take more than 50 years. And if ASRY were to take over, or go into partnership with Dubai's three berth complex whose final cost has not yet been established (a possibility, though remote at present) break even is likely to recede even further into the future.

But on a one dock basis - which is all that ASRY will have during 1978 -and assuming that it meets its target of 40 tankers serviced during the year and charges around European rates, gross return on capital could be as low as 1.3 per cent. On a two dock basis, taking in 120 tankers a year as is the company's aim, the gross return rises to just over 3 per cent.

Looked at from another point of view, on a one dock operation which can be run with around 1,350 employees, ASRY's 40 tankers will be producing a gross revenue of around 3,300 dollars per employee.On a two dock basis, which will require some 1,500 employees, and taking in the ultimate goal of 60 tankers per dock per year, the gross return is just short of 9,000 dollars per employee.

These figures are, of course, very



Exclusively for ARAB OIL, Lewis Morland captures the scene at the opening of the ASRY dry dock in Bahrain. Left to right: H.E. Sheikh Hamad the Heir Apparent of Bahrain, H.E. Sheikh Abdul Aziz, Qatari Minister of Finance and Petroleum, H.E. Sheikh Rashid, vice President of the United Arab Emirates, H.E. Sheikh Isa, Amir of Bahrain, H.E. Sheikh Khalifa, Prime Minister of Bahrain, H.E. Sheikh Zaki Yamani, Saudi Arabian Oil Minister.

rough. They are related to the European charges of around 60,000 dollars for the docking, undocking and first day dry-dock dues for tankers of 300,000 dwt along - by the end of 1977 ASRY is also, at least until mid 1978, selling time at slightly above European but below Singapore rates, though with a trade account the work done 'in the wet' at the ASRY jetties, or the charges for any specialist services. Nevertheless it gives an indication of the possible commercial viability - or otherwise - of the project.

ASRY's fortunes, while primarily dependant on the dry dock, are not wholly bound up in it. It is, confidently asserts general manager Antonio Machado Lopes, one of the best-equipped engineering facilities anywhere in the world. As such the company is actively considering work outside the yard, indeed outside shipping itself. Already it has set up three joint venture subsidiaries on a sixty-forty basis in favour of ASRY.

With five of its seven shareholders being wealthy way beyond their own needs, the question of future financing for ASRY is no problem. So far the shareholders have said they will meet the future capital requirements of ASRY themselves (though Iraq and Libya, the minority partners did not subscribe to the last increase in capital). But almost every banker in the world, and certainly many of the managers of the 40-odd, offshore banking units based in Bahrain, has approached the yard with offers of money in various attractive guises. Given its wealthy backing, ASRY could easily borrow in the Eurodollar markets or issue short term notes.

The question of ASRY's viability still rests on many imponderables outside its own control - on whether the tanker market will pick up and whether there will be any preferential treatment from the growing Arab tanker fleet, on whether the Dubai docks ever become operational and whether there will be any co-operation between the two; and on whether OAPEC decides to establish another dry dock on the Mediterranean coast.

Even though true profitability may only be reached if ASRY's shareholders do 'a Concorde' and write off the initial capital cost of say, a two berth dock, the cost of that is roughly one week of Saudi Arabia's oil revenues at present prices.

Coincidentally, into Bahrain's space-age dry dock on the week of its opening sailed a reminder of the Sumerian traders of 4000 years ago: Thor Heyerdahl's Tigris, a reed boat that was exploring the Gulf on the trade winds until bad weather forced acceptance of a tow from a Russian tanker.

The Best Selection of British Secretaries

Competent British Secretaries (some with additional languages) available from the London based specialists
INTERNATIONAL SECRETARIES
174 New Bond Street,
London W1Y 9PB.
Tel: London 491 7108.

So if you are looking for a secretary to work for you in the Gulf, why not cut out this advertisement and call us next time you visit the UK? Alternatively telex your requirements in advance to us on 28604 ref 194 for the attention of Simon Friend.

NAVIGATION
International Land Transport

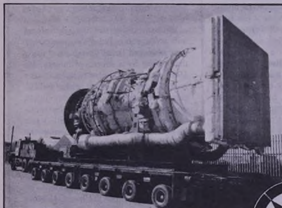
We're Qatar's largest most specialised, most comprehensive transport service. We have more facilities at our fingertips so, whatever your cargo needs, we will handle it —better, faster and more economically than anyone else. Our fleet of **75 vehicles** can carry anything from pipes to parcels, taking loads up to **400 metric tons**. With the largest crane fleet in Qatar, and our **New Container Centre Facility**, we cover the whole range — general cargo, project cargo, long lengths, heavy lifts or air freight. It is a complete service from ship to site, saving you costly delays and middlemen. Why not contact our Manager, Sami Awad, and find out more. He's on DOHA 21697.

NAVIGATION — INTERNATIONAL LAND TRANSPORT

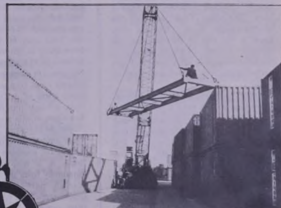
A division of Qatar Navigation & Transport Co Ltd

PO BOX 153 DOHA QATAR
Phone 21697 Telex 4206 DH Cables MELAHA

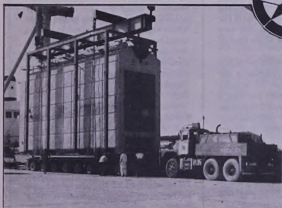
aaa



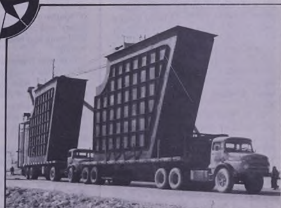
190 ton gas turbine for Ras Abu Fontas power station



New Container Base in Doha



New distillation plant for Ras Abu Fontas power station



New distillation plant for Ras Abu Fontas power station

ISRAEL

Secrets of the Sinai

Israeli occupation of Sinai oilfields was to have been a bargaining counter in the Sadat-Begin talks. John Pooley explains their importance, and of Israel's desperate search for energy.

Israeli oil engineer working on a pipe-line

LONDON press reports in November claimed that Israeli rigs, drilling in secret off the Sinai peninsula, had discovered oil and gas fields which were believed to be commercially viable. Four major finds were reported, the most important being the Sabra field in the Israeli—controlled section of the Gulf of Suez. The other finds were off the Mediterranean coast. One can only guess at the size of the deposits, but whatever is extracted will be welcome to the hard-pressed Israeli economy. Eight earlier attempts to find oil at the site had failed.

Israel's own production of oil is small, amounting to less than 1,000 b/d, and that mainly from the Heletz field which reached its peak in 1966 with 4,000 b/d. But the occupation of Sinai in 1967 and the oil fields of Abu Radais, Belayim, Sidri, Feiran Ekma and three fields in the Gulf of Suez, gave Israel temporary relief. In 1966 these fields produced an average of 81,000 b/d, but the Israelis increased that figure to 110,000 b/d Although that dropped to about 92,000 b/d at the time of the 1975 Sinai Agreement. Between 1967—75 Israel lifted a total of 400 million producing revenues of US dollar 2,100 million. In 1975, 92,000 b/d represented 65 per cent, of Israel's domestic demand—about 140,000 b/d-while the balance had to be imported and mainly from Iran with lesser amounts from Venezuela and Mexico.

At the time of the agreement, Israel had the same problem as the industrial consumers-how to make good the short fall and at the cheapest possible price. The first problem was eased by the rising oil glut on world markets, but like the industrial countries Israel had to pay the asking price. Handing back the oil fields added 200 million dollars to the annual import bill. Part of this was met by US compensation as part of Israeli concessions on Sinai; in addition the US agreed to make oil available if Israel were unable to purchase it on the open market.

In the past exploration has been difficult because of the caution of international companies and the Arab boycott and lack of money. Between 1952 and 1975 only 60 million dollars had been spent in return for a domestic oil revenue of 35 million dollars. The Israeli National Oil Company, a consortium of several local companies is drilling off shore north of A Tour, hopefully with more success than the previous site at Ras Gara which proved dry. Jewish—American investors have a 25 per cent stake among foreign interests who are drilling off southern Sinai. In the Gulf there is a second project, drilling diagonally from the shore, but without foreign participation. Some concessionaires have been slow to take up their options; Fed—Oil, an Israeli—West German private venture has an option to explore the continental shelf off southern and central Israel and in the desert west of the Dead Sea, but very little work had been done at the time of writing.

Like most consumers Israel has begun to stockpile emergency reserves in the south. Two subterranean oil storage areas, capable of containing one year's stocks, were built at a cost of 150 million dollars, but government officials have reported that there are serious problems of seepage.

Because of its geo-political situation Israel has always emphasised its capacity for technological innovation and in May 1977, scientists at the Hebrew University of Jerusalem produced high—grade oil in a test-tube. The process consists of treating certain types of algae with hydrogen under high pressure. Known as DUNALIELLA, the algae thrive in salt water and grow naturally in the Dead Sea. There is a plan to construct large solar ponds for farming the algae as a basis for large-scale oil production. But cost and the time-lag between algae growth and industrial level oil production are incalculable.

The search for alternative sources of energy has accelerated the Israeli investment in coal, nuclear power and solar energy. Current annual oil consumption is between 7 and 8 million tonnes and the Israeli government has decided to try to abandon an oil-based technology as soon as possible. In 1980, the first 350 MW coal-fired plant is expected to open near Hadera and by 1985, nearly 40 per cent of Israel's generating capacity will be coal-fired. Negotiations have been opened with South Africa for regular supplies of anthracite.

Since the mid-sixties, the political and military aspects of Israel's nuclear power have obscured Israel's progress in using that power as a source of energy. By 1980, the national electricity authority has estimated that 30 per cent of Israel's generating capacity would be dependent on US—made reactors. Subject to ratification by Congress, two light water plants will be built at Neitzanian at the Southern end of Mediterranean coast, each with an initial capacity of 900 MW. By comparison, Egypt's projected plant will have a capacity of 600 MW. Originally the plants were expected to go on stream by 1985, but the Israeli Cabinet rejected the 2 billion dollars development estimates and asked for a further study.

Like most of the states in the region which enjoy prolonged sunshine, Israel is not exceptional in developing research into solar energy. Government predictions estimate that by 1990 nearly 15 per cent of the country's energy could be supplied by solar conversion. At Tel Aviv University, successful tests have been conducted in using solar energy for heating, air-conditioning, electronics and communications. The 100-room Neptune Hotel has just completed (November 1977) an 18 months' trial of 80 solar roof panels; its advantages are that it is, in every way, cheaper than fuel oil and the system, supplied by Miromit of Tel Aviv, will pay for itself in three years—or in less if oil prices increase.

EGYPT

SUEZ : Waiting for the Boom

AS EGYPT continues to grapple with its formidable development problems the limelight has tended to fall more and more on the untapped potential in oil, aquifers and other mineral reserves and less on some of the country's hardcurrency earners which are already in operation.

The Suez Canal is a case in point. Yet, when the first phase of redevelopment is complete in 1980, enabling the Canal to accommodate super-tankers, Egypt will benefit from the vast tanker revenues generated by the shipment of Middle East crudes — and these revenues are projected at about 1 bn dollars a year.

The importance of the Suez Canal for Egypt's still faltering economy is not underestimated by the Government. President Sadat, a personal friend of the canal's chief, Mashhour Ahmad Mashhour, has always had high hopes for the canal's earning potential and thinks it will bring revenues "quite sufficient to cover loans for Egypt to help boost the economy".

Mashhour has been working hard at making the dream come true ever since the canal reopened, after eight years of closure, in June 1975. Now he is quietly pleased, although not yet satisfied with his efforts to date.

In percentage terms the increase in the canal's traffic from nothing in the first six months of 1975 to 342mn tons in the year ending June 1977 is impressive. The increase in traffic between 1975/76 and 1976/77 was about 50 per cent.

The latest figures available on individual ship types show that the number of tankers transiting the canal from June 1976 to June last year rose 54 per cent over 1975/76, to 2,899 vessels.

CONTAINER TRAFFIC

Container traffic has also grown enormously in the last year — a rise which is attributed to the increased number of big "third generation" container ships. The figure of 4.5mn tons for the whole of 1975/76 is dwarfed by the 5.5mn tons registered during the first four months of this year alone.

According to Mashhour it was the decision of the two big Far East/Europe liner consortia, Scandutch and Trio, to switch from the Cape route to the canal that made all the difference.

Roll-on/roll-off vessels have also made an impact, and reached a peak last March, when 147 vessels went through the canal. Most important, there seems to be no serious let up in this type of traffic yet, even though the Middle East ports have got over the worst of their congestion problems and conventional ships are returning and reducing demand for ro/ros.

Despite the encouraging statistics, however, the fact remains that the canal has been hit by world recession and the slow-down in oil transportation.

When the canal reopened, the tanker slump was already beginning to bite deep, and today many tankers travelling to the Gulf in ballast find it cheaper to go round the Cape than pay canal dues. This is why the tanker traffic, which Mashhour has always considered the big money spinner for the canal, has been respectable but nowhere near its maximum level.

SECOND PHASE

The expectation now is that revenues should really leap forward in the 1980s as the world emerges from recession and the tanker slack is taken up.

At present, anyway, the canal cannot cope with supertankers (those of 200,000 tons and over) fully laden. The maximum it can accommodate is a 50,000-dwt tanker fully laden. The biggest ship to pass through so far is the 254,0000-ton Esso Skandia, but she went through in ballast.

It is the big ships that bring in the real money as dues are chiefly based on bunker costs.

Tanker traffic accounted for 42.5 per cent of total traffic in 1976/77. Even without a widened canal, Mashhour hopes to boost this to 50 per cent by next year, to 63 per cent in 1980 and eventually 75 per cent when the second phase of development is complete, in theory in 1982.

Total revenues in 1976/77 were 450mn dollars and tankers contributed 37 per cent of this. Mashhour expects revenues to reach about 570 mn dollars this year, with tankers contributing 180 mn dollars. The forecasts for 1980 tanker traffic are colossal, at 239mn, rising later to 378mn dollars and over 728mn dollars in 1985. If the development did not take place, the Authority estimates, the canal would get only a puny 68mn dollars in 1985 from tankers.

HANDY SIZE

The US government has offered 50mn dollars under its AID programme in the form of new equipment and spare parts, and the Japanese Government is providing 80m. dollars. This leaves the Egyptian Government with 126m. dollars to find to make up the difference and Mashhour says he is confident now that finance for Phase I is no longer a problem.

But what about Phase II? This part of the project, scheduled for 1982, will further increase the canal's width and deepen the draught to 67 feet. When this is done very large crude carriers (VLCCs), up to 260,000 dwt fully loaded, and ultra large crude carriers (ULCCs) of 300,000 tons partially loaded will be able to go through the canal.

Even when the second phase is ready, however, the canal will not be able to take the few 500,000-tonners which now exist. But, in Mashhour's opinion, very few 500,000-tonners will be built in future and the emphasis will fall more on the "handy-sized 100,000-tonner".

Mashhour is waiting until 1979 before he makes up his mind whether to go ahead with the second stage. Finanancing will have to be sought even before there has been time for Phase I to prove it has justified the optimism that has encouraged banks to lend so far.

What is more, the expected turnaround in the tanker slump, which Mashhour hopes will arrive around 1982, might be delayed. Mashhour will not say what factors would prevent Phase II from being feasible, although he does admit that the tanker surplus could be a problem. Still, it is only one of the factors that the Authority will be considering when it reviews the programme.

In the meantime, work on Phase I proceeds apace, if anything slightly ahead of schedule. The Japanese company Penta Ocean is the biggest foreign contractor so far, with 100.5mn dollars worth of wet and dry excavations to complete, working in Lake Timsah and the southern section of the canal.

The Beomaster 1900 is a new model from Bang & Olufsen and a remarkable High Fidelity receiver in more ways than one. And it is likely to make a lot of Hi-Fi manufacturers wonder why it was Bang & Olufsen of Denmark and not themselves who came up with the idea.

With a slight finger touch you'll get the desired selection source – receiver, phono or tape. At the same instant the large lightpanel above will light up and indicate the chosen operation. If you wish to listen to one of the five pre-set radio stations you'll be able to tell at once whether you have the best reception, because of an indicator light for FM-tuning. The volume is also adjusted by means of the electronic touch-panel – and indicator lights register the sound intensity. Finally there are indicator lights for adjustment of bass, treble and balance.

B&O three year guarantee

Available from Mohammad Rafie Hussain Marafie/Sharq-Ahmad Al Jaber St.-Marafie Bldg-Tel.449925/27

REG - SOC. AO. JAN. 78.

Dar Al Seyassah Organisation

Publishing-Printing-Marketing-Distribution-Translation

P.O.Box 2270 KUWAIT TEL.813566 TELEX 2332

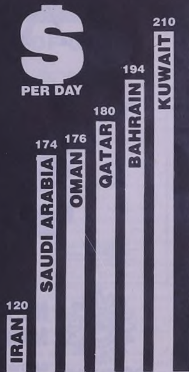
LIVING

HOW TO LIVE ON $200 A DAY

A SURVEY by the Business Traveller magazine puts Kuwait at the top of a Middle East cost-of-living index. Cost per day for a visiting executive is 200 dollars and above, and, says the survey, figures are based on comparatively moderate standards. Kuwait is followed by Bahrain and Qatar, and Saudi Arabian inflation is quoted at 35 per cent.

Oilmen and their families interviewed by Arab Oil put Saudi Arabia at the top of the list, however, with most complaints about the cost of food, water and cosmetics, which, they said, were often 25 per cent higher than anywhere else in the Gulf. Kuwait's Arab Times now features a Shoppers Watchdog column, listing supermarket prices. Some examples: 1½ litres bottled water 200 Fils; standard can of insect killer 450 Fils; ½ kilo butter 425 Fils; 10 frozen fish fingers 510 Fils. (100 Fils- 20 Pence or 34 cents). Dinner in Kuwait Sheraton costs 15 dollars a head — much less than other places in the Middle East" says the management. The Hilton (80 dollars per night for a single) disagreed. "Kuwait does have the highest living costs." Whoever is right, it makes little difference to Kuwaitis, who have the highest per capita income in the world.

OIL EXECUTIVES LIVING COSTS



A friend.

An enemy.

NATIONAL AUTOMOTIVE MANUFACTURING & TRADING Co. K.S.C.

SHOW ROOMS *Shuwaikh 834655 Sour 447085*
Fahaheel 913546 Sharq 447079

AGRICULTURE

KEBABS START HERE

INCREASED oil revenues in the OPEC countries have given rise to massive investment in export-related industries, in projects to improve the infra-structure, and in providing modern standards of health care. The oil revenue has also boosted demand for all types of consumer products to unprecedented levels. Food demand has shared in this boom. Populations in the oil producing countries are rising rapidly as a result of better health care and the influx of immigrants Arab, Asian and African, and of expatriate workers from Europe, the USA and the Far East.

The high earnings of these workers and the narrow range of services on which they can spend their money has reinforced the demand for food, especially for quick cooking foods such as lamb kebabs, hamburgers, chicken and eggs. Take-away food establishments have proliferated in the main towns of the OPEC countries, adding Kentucky Fried Chicken and Wimpy bars to the more traditional kebab stands and pancake vendors.

Imports have risen dramatically because the potential for increasing the supply of meat by traditional nomadic animal husbandry is strictly limited. Beef from the Americas and Australia, and New Zealand, and poultry and eggs from Europe and the USA have begun to flow into the Middle East in ever-increasing quantities, and it is now the world's major growth market for food. The consumption of poultry meat in Saudi Arabia, for example, increased by 142 per cent in the period 1973-75 from 18,000 to 43,500 tonnes.

This rapid rise in consumption has encouraged local entrepreneurs and government organisations to satisfy demand from local production. While governments are naturally interested in saving imports, commercial producers are more concerned with cashing in on local preferences for fresh products which they can be sure comply with religious requirements.

In practical terms the only livestock area which Arab countries can expand rapidly is poultry, and most Middle Eastern countries aim at achieving self-sufficiency in chicken and eggs by the early 1980's. This has given rise to considerable investment in local production facilities, not just in the oil-rich states, but also in the poorer countries such as Egypt.

Hunger is universal.

There is also considerable interest in the development of dairy farming. Compared with imports from Europe, the USA or New Zealand this may grow more slowly, but nevertheless, the demand for fresh produce is such that wealthy land owners are encouraged to set up dairy farms using European technology and other European management.

Its future, however, is dependent on the willingness of Arabs to invest in dairy farming. The potential demand for dairy farm produce is enormous and even if local producers satisfy only a small part of the total demand it could still become a significant element in the Middle East.

As the production of livestock in the Middle East expands, so will demand for feed. Calculations of this type are always problematical but, based on its own forecasts of consumption and the degree of self-sufficiency in the area, the Battelle Institute of Geneva, forecast that the demand for poultry feed alone would be over 4,000,000 tonnes by 1985 in an area comprising the Arabian Peninsula plus Iran, Sudan and Egypt. The consumption in 1976 was probably less than one-tenth of this figure.

In the longer term, however, there will be a market for the supply of basic raw materials including vitamin and mineral supplements. No other area offers an immediate prospect of such rapid growth.

AVIATION

JETS: OUT OF GAS?

WHEN the demand for jet fuel reaches about 10—12 per cent of the refinery product, as opposed to the 6½ per cent today, "the constraints on production will be major, and costs and availability may become problems. The aeronautics industry and the refining industry should determine, together, whether it is better to relax specifications."

James A. Finnernan, Vice President of Product and Systems Marketing of the Pullman Kellogg Division of Pullman Incorporated, Houston, told aeronautical industry officials that "there is a point at which the naturally-supplied jet fuel will run out."

Speaking at the aerospace meeting of the Society of Automotive Engineers Mr. Finneran said "jet fuel faces strong market competition because the distillate fraction from which it is made is also used for diesel fuel ... for number 2 fuel oil, and it can be converted into gasoline."

"As a consequence" he added, "the United States imports a substantial portion of its jet fuel."

The Pullman Kellogg executive said that, while there currently is not a constraint in refining capacity to produce jet fuel, "the squeeze is coming. If we accept the generally-projected scenario," he told his audience, "petroleum supply and use will begin to decline and the petroleum use pattern will be much different by the end of this century. It will not be used for electric power generation, but only for the so-called higher priority uses—those for which other energy sources are not feasible.

"Air transportation is certainly in that category, but so is highway transportation, petrochemical manufacture, and domestic heating."

"It is more than likely we will want more than the ten per cent jet fuel which nature kindly supplies in crude oil and there is no simple, efficient, inexpensive way to synthesise it from other components of petroleum. The processes are there, but they are not simple, inexpensive or efficient."

"An alternative which merits serious consideration" said Mr. Finneran "is relaxation of jet fuel specifications."

AO. REG-HYDRO Jan 78.

SURVEY

GAS : Qatar's Great Potential

by MICHAEL FIELD

QATAR and the other oil producing countries of the Middle East have come to realise over the last five years or so that they may all be in the big league in world gas resources. Previously they were known to contain oil fields of a size not found anywhere else—the two biggest fields in the region are five times bigger than anything outside. But, with the exception of Iran, their gas reserves, in the form of associated gas (gas found dissolved in oil or as a gas cap above oil), were on an altogether smaller scale.

What has changed the picture has been the oil price rises, which have made an economic proposition of associated gas (previously flared) and have prompted governments and oil companies to investigate deep strata, Khuff limestone of the Permain era, where they have for some time been aware of the existence of unassociated gas, without having much idea of the quantities involved.

Since serious exploration began, Khuff gas has been discovered in several Gulf countries, including Bahrain which is particularly short of oil resources, while those countries which have not drilled yet are planning deep wells. (Kuwait is now planning to drill to 20,000 ft). The really big discoveries, however, have been in just two countries—Iran, which has the massive Kangan and 'C' Structure fields, and

This survey of the important new gas fields at Qatar is reproduced by courtesy of ALMURJAN magazine of the Gulf Hotel, Dohar.

Qatar, with a structure known as the North West Dome (NWD).

These three fields are all in the same class as the world's biggest—Groningen in Holland, Hassi R Mel in Algeria and some of the Russian fields in Siberia, which contain something like 60-80 trillion cubic feet of gas associated with oil in Alaska's Prudhoe Bay field, about 15 trillion cubic feet in the biggest North Sea gas fields, Frigg, Indefatigable, Leman Bank and Viking, and 2.5 trillion cubic feet in West Sole, one of the earlier and smaller North Sea gas fields.

The discovery of Khuff gas, and the parallel improvement in the economics of associated gas, has added a new dimension to the Middle East's natural resources. This new dimension is particularly important for a state such as Qatar, which has been quite throughly

Gas flares at Qatar's Dukhan field

explored for oil and is not now likely to discover further oil fields of anything near the size of the four it is producing at present. The only snag, as will be explained later on, is that there is some question as to the security of the markets for gas and the potential of gas as a revenue earner compared to oil.

In Qatar unassociated Khuff gas is found in two places—beneath the Dukhan oil field on shore and in the North West Dome offshore. (There is Khuff limestone containing gas underneath the three offshore oil fields, Idd al Shargi, Maydhan Marzan and Bul Hanine—but the amounts of gas are known to be very small even though only the most preliminary exploration, one well in each field, has been carried out to date.)

The original well to be sunk into the Khuff limestone beneath Dukhan was drilled in the late 1950s, when the interest of the then concessionaire, the Qatar Petroleum Company owned by BP,Shell,Total,Exxon and Mobil, was in gaining information about its field rather than in proving commercial reserves of gas. The first of the new series of wells was sunk in 1970-71 for the purpose of delineating the gas-water contract level, and since then four more wells, including three producers have been drilled. A fifth is in progress and a sixth has been started.

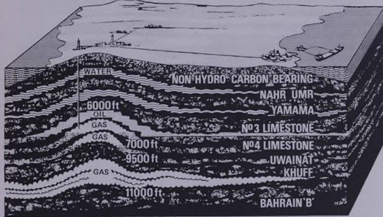
On the basis of these wells it appears that the reserves of gas in the Khuff beneath Dukhan are quite small. The gas bearing structure seems to be confined to an area under the northern end of the oil field, though it is just possible that the seismic shot at the end of March will show that the structure also runs off to the north-east. It may also be found eventually that there are further gas bearing structures, unconnected to the northern structure, under other parts of the Dukhan field, particularly the southern end. Whereas in the Upper Jurassic oil bearing layers of Dukhan the stratas run fairly evenly, sloping gently upwards as they run north, at Permiah depths it can be deduced that there may be undulations (potential gas traps) because it is known that under Saudi Arabia the Khuff limestone is nearer the surface than it is at the southern end of Dukhan.

The proven Khuff structure at the northern end of the Dukhan is particularly complex by normal Middle Eastern standards, which involve school textbook structures with a big thickness of oil or gas bearing rock lying underneath an impermeable cap rock shaped like an upturned saucer. The Dukhan Khuff is split into three gas bearing zones between which the limestone becomes so dense as to be impermeable. Even in the gas bearing zones, the Khuff limestone resembles washstand marble—it being possible for gas to be contained in dense rock, compressed by great depths, which could not harbour oil.

What, of course, makes the Khuff gas beneath Dukhan an attractive proposition is that the field is onshore and close to all the necessary ancillary service—and therefore cheap to develop.

The other source of unassociated gas for Qatar is altogether more spectacular, though it is no better explored than Dukhan. As yet the NWD has not even been given a proper name—the offshore oil fields having been named after the pearl divers'terms for the slight rises on the sea floor which are discernable above the fields. So far there have been four exploratory wells drilled in the NWD each at least 20 miles from its neighbour, which have shown the existence of a gas field located about 40 miles north-east of the Qatar Peninsula and covering an area of some 700 square miles—an infinitely bigger area than any of the Qatar oil fields. Accurate estimates of reserves are obviously impossible—four holes in 700 square miles is not very many. But four holes are still sufficient to show that the NWD is a world giant class field.

The NWD, furthermore, raises the intriguing possibility of there being further gas fields to the south-west. There being further gas fields to the south-west. There is an anticline known unofficially as the Qatar Arch running roughly north-south through the whole length of the Qatar peninsular and then, a bit before the top of the peninsula, curving gently to the north-east and running out to the offshore boundary. During the 1950s, wells were drilled into this formation in search of oil at Jurassic depths, and traces of bitumen were discovered—which suggests that there may once have been oil present but that over geological periods of time it migrated northwards. The Qatar Arch, like the strata in the Dukhan area, gets nearer the surface as it goes north. At the oil levels the slope is, once again relatively even, but at the deeper Khuff level there is the possibility of undulations and gas traps. Whether or not there are undulations will be shown by the seismic survey of Qatar shot last year—though even if the results are positive, it will need drilling to establish whether the traps contain any gas.



This artist's impression shows a cross section of the Northern end of the Dukhan Field. It is not drawn to scale. aaa graphics

Leaving aside speculation about the Qatar Arch area, for practical purposes the Qatar Government's attention in planning the utilisation of its gas resources is focussed on its four proven gas sources: associated gas from the offsore fields and unassociated gas from the NWD.

Until the disastrous explosion at the Umm Said Natural Gas Liquefication Plant in April last year almost all of the associated gas from the Dukhan oil field was already being used. It went to a stripping plant on the oil field where the natural gas liquids (NGL) with some ethane dissolved in it was extracted, leaving a residue gas composed of methane and the rest of the ethane. Both the NGL and the residue gas were then pumped across the peninsula. The residue gas went (and still goes) into the system which supplies feedstock for the QAFCO fertilizer plant (and in future feedstock for QAFCO 11) and in fuel for the Ras Abu Aboud power station NGL went into a fractional plant at Umm Said. The stripping plant and the fractionation plant together made up the Natural Gas Liquids facilities referred to as NGL 1.

The Umm Said fractionation plant broke down the liquid it received into its constituent parts. First there was an ethane rich gas which while the plant was operating was flared but will in future, be used as feedstock by the petrochemical Company (QAPCO). This ethane used to be the only part of the Dukhan associated gas which was not used productively—apart from minor amounts which were flared as an operational necessity at the field.

Second, there were NGL, propane, butane and natural gasoline, which were separated from each other and exported in liquid from by tanker. Propane, being the most volatile of the liquids and having the lowest boiling point, is used mainly for domestic purposes, which involve it being stored in big cannisters and used to fuel cookers and heaters in areas or countries where there are no mains (methane) gas supplies. The more stable butane is used for sueh purposes as camping gas and cigarette lighter fuel; and the natural gasoline-pentane, hexane, etc—is used either as a feedstock for petrochemicals or as an oil refinery imput—in which case it will eventually emerge as gasoline or some other light distillate. Elsewhere natural gasoline is often used to spike crude to make it lighter, but with Dukhan crude being the lightest in the Gulf as it is, this process is unnecessary in Qatar.

Since the explosion at the stripping plant, the NGL has been flared, but the national oil company, Qatar General Petroleum Corporation, is going ahead with plans for rebuilding. However, because projections for Qatar's future oil production are now lower than they were when the original plant was built, the new facilities will have the capacity to cater for gas associated with an oil output of some 220,000 barrels per day rather than 320,000 b/d.

At the oil production rates currently planned for Dukhan, Qatar's annual production of NGL from onshore sources should amount to some 18/20, 000 barrel per day (a barrel being 35

MICHAEL FIELD is a leading international authority on oil finance. Author of *A Hundred Million Dollars a Day* he is editor of the Middle East Annual Review and a regular contributor to the American Banker and the London Financial Times.

Loading QAFCO urea at Qatar's Umm Said

are extracted from crude oil as it is fed through the gas/oil separators (which reduce the pressure of the oil immediately after it has reached the surface) will vary significantly with the changes in temperature from winter to summer. In summer when the temperatures are higher, more of the heavier gasses will flash off in the separator whereas in winter they will stay undissolved in the crude.

Turning to the offshore fields, the associated gas produced from Idd al Shargi, Maydhan Marzan and Bul Hanine is at present flared, but work has already started on a second NGL complex to be known as NGL 11. The processes involved in this plant will be very much the same as those involved in NGL1. The different liquids will be added to the output of NGL1 and exported, and the ethane rich gas to be taken out of the NGL by the fractionation plant (to be built beside the existing fractionation plant at Umm Said) will be used as feedstock by the petrochemicals plant.

The utilisation of the residue gas, however, has yet to be decided. The basic options are to put it into the existing residue gas system or to put it into the Dukhan Khuff system which is being built to supply the Ras Abu Funtas power station and the steel mill—Dukhan unassociated gas having too low a calorific value to be mixed in with the existing system supplying QAFCO. Alternatively the offshore residue gas may be used in a system of its own either as an industrial fuel or as a feed-stock for some new petrochemicals or fertilizer plant. Unfortunately the offshore residue gas is very sour, containing a lot of hydrogen sulphide, and it may be necessary to build a sweetening plant for it. In fact some of the options for its use would require the construction of a sweetening plant as an absolute necessity.

Finally, the Khuff gas from the North West Dome is also unallocated as yet, but it is thought that it may well be exported as Liquified Natural Gas, and a big plant with an input of 1,200 million cu.ft. a day is currently under study by the Qatar Gas Company, owned 70 per cent by the national oil company, the Qatar General Petroleum Corporation, and 30 per cent by Shell, Qatar's former offshore concessionaire.

Liquified Natural Gas plants are, of course, notoriously expensive and require big volumers of natural gas if they are to be economic, and so far few of them have been built—the best known examples being in Algeria and Brunei. However, some measure of the size of the NWD structure can be gained from the calculation that the field could, in theory, sustain 10 LNG plants of the size of Shell's 900 million cu.ft. a day Brunei installation.

The major problem involved in the exploitation of the gas from the NWD concerns its long term marketing prospects. Natural gas is a highly desirable clean fuel, demand for which is expanding continually, but there is always the possibility of new discoveries or that the rapid exploration of finds already made near the main markets, will again render liquification plants located in the Middle East uneconomic. These potential new sources are in Canada and Alaska for the United States, in the northern North Sea for Europe and in Siberia for Japan.

In fact, the chances of the United States, Europe and Japan all being supplied in the 1980s with sufficient natural gas from sources relatively close to are slight- and even if new sources close to the centres of demand did, for a time, meet most of their requirements, Western consumption of gas is potentially so huge that it would probably quickly outstrip supplies.

A second problem involved in the exploitation of LNG is one of cost. By the time the gas reaches its markets it will probably have cost ten times more per calorific unit than oil—the cost in effect being deducted from the exporting state's revenue.

Thirdly, if in the case of associated gas a producer decides to use its resources to manufacture petrochemicals there is the problem that by the time the products reach their markets they are, for a host of reasons, almost certain to be more expensive than competing products made from raw materials imported from the Middle East and processed in the consuming country. This means that petrochemicals plants in the Middle East require subsidies in the form of cheap or free gas—not that this matters if the feedstock has previously been flared or, like ethane rich gas, has no commericial export value.

The conclusions to be drawn from these problems are two-fold: first, gas is never going to be such a profitable revenue earner for the Middle Eastern countries as oil is now; and second it is not such a secure foundation as oil on which to base a country's revenue earning capacity.

To make this comparison, though, is to compare gas with a commodity which is (a) enormously profitable-Middle Eastern crude now costs a quarter of a dollar to produce and yields revenues of 12-13 dollars a barrel; and (b) is an overwhelmingly strong long term position in the market. Whereas with gas the West might conceivably increase its consumption and remain more or less self sufficient, with oil there is no chance of the West not continuing to be havily dependent on the Middle East for the indefinite future.

Seen in this light then the comparison with oil is an unfair one. Judged against other major commodity exports gas is a very desirable resource. With a bit of luck and a degree of regional co-operation to ensure that the world market does not get saturated with LNG or any particular petrochemical product, it should play a major role in the economies of Qatar and the other countries of the region until well into the next century.

GAS AGREEMENT

DUBAI: For producing and using natural offshore gas from Umm al-Qaiwain, Dubai has agreed to pay Dh 150 million (38 million dollars). Dubai will start a well in March and build a pipeline to the industrial complex at Jebel Ali.

CONTRACTS

ADNOC'S 'Hilton' Abu Dhabi

ADNOC'S 'HILTON'

A DWELLING complex for the Abu Dhabi National Oil Company (ADNOC) is to be built on the Corniche by the Hillton Hotel and building contractors, Bernard Sunley & Sons Limited of Beckenham, Kent, have been awarded the £14 million contract which excludes air-conditioning and electrical servises.

When complete the complex will be a self-contained living unit providing 153 apartments, supermarkets, theatre, kindergarten, gymnasium, sports hall, discotheque, cafeteria, health centre, social club and laundry for ADNOC employees. The large luxury apartments will have floor areas of up to 2150 sq. ft. with two bathrooms and fully fitted kitchens.

The apartments will be constructed in two multi-storey blocks, each formed to a separate circular shape on plan, rising from seven to 13 floors in height. Six circular reinforced concrete shafts are to be constructed at intervals independant of the main structure for the provision of elevators and staircases.

The construction of the complex is scheduled to be completed in phases to an overall building programme of 104 weeks.

The winning of this contract brings the total value of Sunley's work in the Gulf States to around £180 million sterling.

Architects for the scheme are Constantine D. Kapsambellis & Associates of Athens.

ABU DHABI

A DRILLING contract for Abu Dhabi Petroleum Company has been awarded to Geoprosco International, a member of the U.K. Trafalgar House Group. Value of the contract is at least £7 million. Drilling to 10,000 feet will take two years. 60 men will be on site in 24 caravan units.

IRAN/GERMAN PIPELINE

SAIPEM, The Italian pipeline company has won two major contracts from Iran, for a total value of 255 million dollars to be paid in cash, to build two huge gas pipelines.

A company spokeman said one contract signed with the Iranian Petroleum Company (NIOC) provided construction of a 632-kilometre pipeline from Iran to West Germany through the soviet union.

The second contract signed by SAIPEM and OSCO, the Iranian hydrocarbons group, provided construction of a 160-kilometre pipeline at Marun and six stations for gas compression.

GROUND FLARES

KINETICS Technology International (KTI) B.V. of Zoetermeer, The Netherlands, signed a license agreement with Hitachi Shipbuilding and Engineering Company Ltd. Osaka, Japan and Mitsubishi Petrochemical Engineering Company Ltd. Tokyo, Japan.

Under this agreement KTI is licensed to market, design and fabricate in Europe and the Middle East the HZ type ground flares. These ground flares, with a proven capacity of up to 60 ton/hour, were especially developed to meet the stringent requirements for noise, light emission, atmospheric pollution and energy conservation.

ASPHALT

IPRAS and Badger Pan America Inc., a subsidiary of Raytheon Company, have signed a contract covering the provision of design, engineering, procurement and construction supervision services for an asphalt manufacturing facility to be built at the IPRAS Refinery at Tutunciftlik - Yarmica, near Izmir, Turkey. This work will be performed mainly in Badger's London office.

IPRAS (Istanbul Petrol Rafinerisi) is a wholly-owned subsidiary of Turkiye Petrolleri A.O. (TPAO) the Turkish state-owned oil exploration, production and refining corporation.

This project will provide for IPRAS an asphalt manufacturing facility, comprising vacuum distillation, bitumen blowing, blending, storage and shipping sections capable of manufacturing up to 600,000 metric tons per year of finished asphalts for road-making and specialised uses.

The project, estimated to cost approximately 20 million dollars, is scheduled for completion late in 1979.

UPGRADING ISLAND

KUWAIT OIL COMPANY (K.O.C.) has awarded E.T.P.M. (Entrepose - G.T.M. pour les Travaux Petroliers Maritimes), leading offshore contractor, a contract for the upgrading of the existing sea island at MINA AL AHMADI and the construction of a single point mooring system for the loading of tankers up to 500,000 DWT.

This contract is worth 27 million dollars and completion is scheduled for January 1979.

Energy Consultants

We are seeking a few exceptionally able people to join our international energy consultancy practice, based initially in North Africa, with good career opportunities afterwards.

We can offer the opportunity of taking a significant management role in demanding casework involving participation in high level decision-making in the oil and gas industries.

Successful candidates are likely to have:

- *proven record of success (at least 5 years) in the oil, gas or chemical industries;*
- *a high level of analytical and conceptual skills in:*

  – marketing and distribution
  – strategic planning
  – energy economics
  or other related fields

- *a working knowledge of French and English;*
- *the ability to lead and motivate a case team under demanding circumstances.*

The remuneration package (including local living allowance, accommodation, transportation and the opportunity for regular travel) will be attractive to the high calibre people we seek.

Write in the first instance, with brief C.V. to:–

Mrs. V. Zebedee, Arthur D. Little Int. Inc.
Berkeley Square House, Berkeley Square
London W1X 6EY

RED CHINA

Petro-chemical works at Peking.

Red China Buys US Platforms

Two offshore oil production platforms will be sold to the People's Republic of China for more than 15 million dollars by the ARMCO Steel Corporation's division, the National Supply Company.

The sale marks the first major purchase of US Petroleum equipment under China's fifth five-year plan, said T.C. Rogers, President of the Houston-based National Supply Company.

The two platforms are designed for drilling depths up to 20,000 feet, and additional contracts for parts and supplies are under discussion with the Chinese.

Meanwhile onshore a number of high yield oil wells at Shengli oil field near Pohai Bay about 380 kilometres south of Peking are now producing.

The wells were sunk in deep geological formations never before exploited and geological prospecting has verified that similar geological formations exist widely in the area, in Shantung Peninsula, announced the Hsinhua News Agency.

"After 13 years of exploitation and construction," Hsinhua said, "Shengli oilfield has become a complete oil centre embracing prospecting, exploitation, crude oil production and transport, oil research machine repair and petrochemical engineering."

It said in response to Chairman Hua Kuo-Fengs calls in early spring that 10 or more oil fields as big as Taching should be built, Shengli oil field workers have mapped out a plan to expand their production to the scale of Taching. Taching in North China is China's model oil producing complex.

Production figures were not given. But if Red China finds it good to trade with the West in offshore production platforms it sees nothing but evil in the Soviet Union's increasing general lead with Western nations and Japan.

This is helping the Soviet Union boost its economic potential for a "sustained arms drive and war preparations," Hsinhua News Agency said. It added that the Soviet Union also is seeking enormous credits to finance the import of sophisticated equipment, technology and grain.

DIARY

CAIRO
SHIPPING CONFERENCE: The first international shipping conference to be held in the Arab world takes place this month in Cairo.
Chairman will be Abdul Aziz al Sagr, Chairman of the Kuwait Oil Tanker Company. Sponsored by the Arab League the Arab Maritime Maritime Transport Academy and organised by Seatrade magazine, the conference is attracting delegates from all Arab states.

TRIPOLI — **January 16**
TENTH ARAB PETROLEUM CONGRESS, Tripoli; Topics: Marketing of Arab oil and gas; Oil prices; Cooperation between Arab producers and consuming countries; Prospects of Arab oil and energy alternatives; Training; Economic problems in transportation of Arab oil; Production: New techniques in exploration; Latest development in the petrochemical industry, and prospects of the petro-protein industry in the Arab world.

BOMBAY — **January 18 - 25**
CHEM TECH '78, Bombay.

LONDON — **February 14**
DIVING IN THE OFFSHORE INDUSTRY: Royal Westminister Hotel, London, organised by the Pipeline Industries Guild, 17 Grosvenor Crescent, London. Open meeting.

JEDDAH — **February 21 - 28**
CONFERENCE ON RED SEA ECOLOGY, Sponsor: Arab League Educational Cultural and Scientific Organisation.

BRIGHTON — **March 5 - 10**
OCEANOLOGY INTERNATIONAL '78: National Conference Centre, Brighton.

HOUSTON — **March 21 - 23**
INTERPIPE '78, Houston Texas: International Pipeline Technology Convention.

RIYADH — **March 26 - 30**
FIRST WORLD CONGRESS ON RESOURCE DEPLETIONS, Riyadh, (University of Riyadh) Energy alternatives and the quality of life in the year 2000.

HARWELL — **April 26 - 27**
MAJOR CHEMICAL HAZARDS forum seminar, the Conference centre of the Lorch Foundation, Lane end, Buckinghamshire, organised by AERE Harwell, Didcot, Oxfordshire, U.K.

LONDON — **May 5 - 13**
ENERGY ECONOMICS, Tunbridge Wells, seminar eight-day residential course, organised by the Institute of Petroleum. London.

You'd be surprised!

With nearly 20 years experience in the region we have a pretty good idea of the local scene. So far, we can't claim to have seen an oak tree flourishing out here, but it is amazing what things do find their way to the Gulf. Who knows? Perhaps someone, somewhere is planning to ship one out!

Indeed the idea of an oak tree in the Gulf may at first seem as far fetched as an agency producing work to the standards of London and New York.

We cover the entire range of media advertising and PR, and specialise in high quality printed brochures, menus, magazines, annual reports and other such publications and promotional material. All originated and produced by us, here in Bahrain.

Contact aaa. Let us surprise YOU!

AWAL ADVERTISING AGENCY. P O Box 693 MANAMA BAHRAIN
Tel: 50004/58342 Telex: 8669 AAA GJ Cable: AWADAGENTS

WORLD PRESS

Atom offer

ISRAEL has offered to cooperate with Egypt in constructing a nuclear power plant in the Sinai Desert, Business Week Magazine reported during December. The magazine said the Israelis also offered to cooperate in developing jointly the oil reserves in the Gulf of Suez, but Egypt apparently will continue to develop those reserves with Standard Oil Co., (Indiana) and other major oil firms. Some observers think Egypt is more likely to be interested in the Sinai power plant and in cooperative irrigation and agribusiness ventures than anything concerning oil, the magazinge said.

"Egypt could supply water from the Nile, one of its few abundant resources, while Israel would provide its proven knowhow in water management and farming," the magazine said.

"For both sides, a joint stake in such projects could create an economic buffer zone in an area that they have previously fought over.

"No sooner had Egyptian President Anwar Sadat returned from his dramatic peace trip to Jerusalem than telex machines in Cairo began tapping out the first business proposals from Israel in 30 years."

The Bank Leumi of Israel invited the National Bank of Egypt to start a correspondent banking relationship, and Bank of Alexandria received a similar proposal from an Israeli Bank. The magazine said, however, that the Egyptians haven't responded to any of the messages.

Algerian discount

'BULLETIN de L'Industrie Petroliere' (BIP) has reported that buyers of Algerian crude oil have been informed of a cut averaging 20 cents per barrel for contracts beginning with the first quarter of 1978.

BIP said that Sonatrach, the state-owned oil company, has decided to cut price differentials for its Saharan and Zaraitine crude to 1.55 dollars barrel and 1.50 dollars a barrel respectively. This means that for a reference price of 12.70 dollars for Arabian light crude, the Algerian qualities will be reduced by 20 cents per barrel. BIP adds this was later confirmed by French oil industry sources.

Politics, not money

POLITICAL, rather than economic ties, must in the end bind the destiny of Saudi Arabia to the destiny of the West, The New York Times said in an editorial last month.

The oil exporting countries and particularly Saudi Arabia, must invest in the West the wealth they can't spend. Thus, Saudi Arabia is likely to keep its oil at acceptable production levels and prices because "it has little to gain and much to lose from a shake-up in the world order."

Stalled

THE weekly Arab Press Service reports that Kuwaiti financing of Indonesia's planned refinery at Baitam has been stalled because Kuwait is not satisfied with the terms. Indonesia was offering 12 per cent of the profit. Kuwait also wanted the product to be consumed locally, but Indonesia wants to export most of it to Japan.

More tankers

A "significant expansion" of the Arab Maritime Petroleum Transport Company is expected, reports the London Financial Times. AMPTC is to set aside 200 million dollars to buy tankers of 25,000—30,000 dwt, and may also order a 200,000—250,000 dwt tanker. No decision has been taken on financing the purchasing programme.

GAS Collection

A MULTI-MILLION dollar gas collection plan for Bahrain's oilfields has been approved by the government, reports the Gulf Mirror.

The Bahrain National Oil Company, along with the Ministries of Development and Industry and Finance and National Economy, will go ahead with the implementation of the project to collect associated gas from the oil fields.

Aramco cut

ARAMCO'S 700,000 barrel a day cutback in light crude production introduced temporarily four months ago will continue, reports the Petroleum Intelligence Weekly. The cutback was ordered so that reservoir pressures could be studied, but a sagging market since has meant that the cutback was not felt by consumers.

BOOKS

OIL AND GAS INTERNATIONAL YEAR BOOK 1977/78
The Financial Times Business Publishing Division, London, 743 pages. £12.50

ENCYCLOPEDIA OF ENERGY
Edited by Daniel Lapedes McGraw-Hill Company, New York, 785 pages. 24.50 dollars

WORKING ABROAD
By Godfrey Golzen and Margaret Stewart. Kogan Page, London, 239 pages. £4.95

JOINT VENTURES IN MIDDLE EAST OIL 1957/75
By P J Stevens, Middle East Economic Consultants, Beirut, 1976. 205 pages.

WHO'S WHO IN WORLD OIL AND GAS 1977/78
The Financial Times, London, 719 pages. £14.50

ARAB UNIT OF ACCOUNT: STUDIES AND VIEWS
Organisation of Arab Petroleum Exporting Countries (OAPEC), Kuwait, 1977. 153 pages (In Arabic).

FOREIGN POLICY MAKING IN THE MIDDLE EAST
By R D McLaurin, Mohammad Mughisuddin, Abraham R Wagner. Praeger Publishers, New York, 1977. 313 pages. £5.30

OFFSHORE INVESTMENT CENTRES
By John Chown and Thomas Kelen. Edited by Philip Thorn, The Financial Times, London, 285 pages. £25.00.

OMAN
By Donald Hawley. Stacey International, London, 256 pages. £20. Also in Arabic, £20.

ENGINEERING & DEVELOPMENT IN THE IN THE GULF
Bahrain Society of Engineers, Graham & Trotman, London, 1977. 228 pages. £12.50

when it comes to water storage don't choose second-best–

choose Truf-Tanks

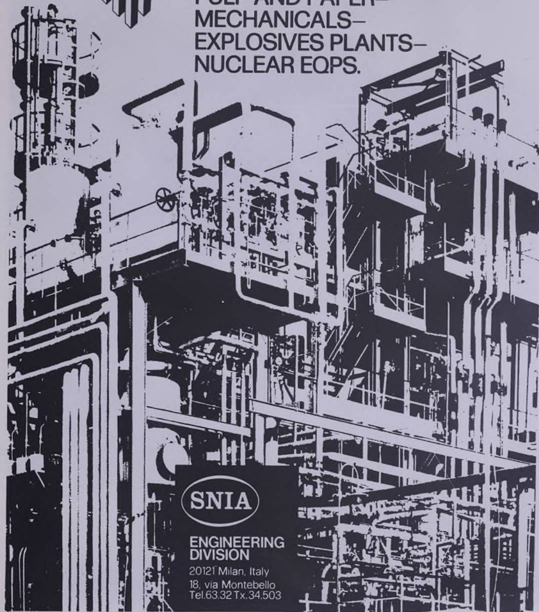
The Shortage of drinking water in the Middle East is an obvious problem. Solving the problem is simple, you contact Truf-Tanks. Many Truf Tank structures are already operational in the Middle East and many more near completion. Erection time is reduced to a minimum by the use of our unique design-mild steel plates pressed in modules, approximately 1.5m wide thus enabling economic transportation – the modules are then simply welded together on site. Expensive and troublesome internal supports (a feature of many other tanks), are kept to a minimum, ensuring economic construction and maintenance costs. Don't settle for second-best when the best is available.

TRUF TANKS

P.O. Box 1, Lichfield, Staffordshire, England.
Telephone: 54388 Telex 339661.

SNIA ENGINEERING

CHEMICAL FIBERS–
CHEMICALS–
PULP AND PAPER–
MECHANICALS–
EXPLOSIVES PLANTS–
NUCLEAR EQPS.



résidences

GRAY D'ALBION CANNES

Côte d'Azur

There may be other cities where the sky is as blue and the sea as beautiful.
There may be some where life is as pleasant and entertainment as plentiful.
Perhaps some are as elegant and sophisticated. But...

No other city in the world offers such a dazzling and subtle blend of so many charms.
The climate ? Protected by a circle of hills surrounded by mountains, Cannes knows no storms nor excessive heat or cold.

The charm ? It is made of the millions of flowers which seem to follow no season, the century old palm trees and the endless beaches of the finest sand, such as cannot be found anywhere else along the coast.
But it is above all made of this unforgettable site where the bay is invariably calm and the horizon forever blue.

The luxury ? Cannes is, with London, New York, Paris and Rome, one of the five cities of the world where the most famous jewelers, couturiers and leather-shops make it a point of honour to be present. Formerly the city of princes and kings, it is still today the one where the most sumptuous villas and the most elegant apartments, the most beautiful automobiles and the most glamorous yachts may be found.

The entertainment ? Are there many cities in the world that offer within its boundaries, 3 casinos, 3 yacht harbours, more than 150 restaurants, and innumerable cultural, social and sporting clubs ? In its immediate neighbourhood may be found two of the greatest restaurants in France, 4 eighteen hole-golf courses, 5 horse-racing clubs, an aero-club and every conceivable sporting activity.

The Gray d'Albion-Cannes is not just a building among many others : it is an urban enclosure, a city within a city, with its residences, gardens, shopping gallery, hotel and underground parking facilities (more than 1.000 spaces !).

Within a few minutes, almost without stepping away from home, one may find everything one wishes. Just a few steps to one of the lifts and all shops are within your reach.

To live at the Gray d'Albion-Cannes, is to know seclusion without isolation, the comfort of elegant apartments, the spaciousness of immense terraces, the joy of living without obligations, and without worries. It is also to relax in the knoweldge that security has been the object of the most attentive care.

The Gray d'Albion-Cannes Residences are bringing back a forgotten way of life, that of the «Pearl of the Riviera» at the turn of the century, when one had everything conducive to happiness as well as the time to enjoy it.

This is the most luxurious development in the pleasantest surroundings, in a city which is the most prestigious on the coast.

Information : Madame Bucciarelli, 17 la Croisette
06400 Cannes. France. Tel. (93) 39.09.34
Telex : 47.00.22 F.

France-Conseil

SAS
SCANDINAVIAN AIRLINES

SCANDINAVIA
is a way of life...... fun, friendly, carefree. Scandinavia is a way of flying.

Climb aboard SAS in Kuwait and enjoy the difference.

SAS offers you every Thursday and Sunday direct service to wonderful Copenhagen.

Visit Copenhagen, the gateway to Europe and North America.

On business or pleasure fly SAS
THE SCANDINAVIAN WAY
Ask your travel agent or our G.S.A.
BEHBEHANI TRAVEL BUREAU Tel. 439561 – 2
for details of our flights
from Kuwait

SAS
SCANDINAVIAN AIRLINES

Marlboro

Marlboro, the number one selling cigarette in the world.