Schlumberger

1998 Annual Report

Cover: The new Schlumberger logo, introduced in 1999.
See the page after the accordian fold for details.

Schlumberger in Brief

	1998	1997[2]	1996[2]
Operating revenue	**$ 11,815,553,000**	$ 11,543,431,000	$ 9,701,685,000
Net income[1]	**$ 1,014,199,000**	$ 1,384,549,000	$ 919,487,000
Basic earnings per share	**$ 1.87**	$ 2.57	$ 1.72
Diluted earnings per share[1]	**$ 1.81**	$ 2.47	$ 1.69
Dividends declared per share	**$ 0.75**	$ 0.75	$ 0.75

[1] The 1998 results include an after-tax charge of $380 million ($0.68 per share–diluted). For details, see "Third Quarter Charge" in the *Notes to Consolidated Financial Statements* on page 30.

[2] Restated to reflect the acquisition, in 1998, of Camco International Inc., which was accounted for as a pooling of interests.

Letter from the Chairman

Schlumberger achieved modest gains in this roller-coaster year for the oil and gas industry. Strong results in the first half of the year were sharply reversed when Asia's economic problems began to depress the region's demand for oil and gas and semiconductors. When the downturn became evident, we began consolidating resources and making significant cuts in personnel. The after-tax charge of $380 million taken against earnings in the third quarter reflected the expected cost of these actions. Net income for 1998 before this charge was $1.39 billion, 1% above 1997 levels; diluted earnings per share were up slightly, from $2.47 to $2.49. Operating revenue was up 2% to $11.82 billion.

Oilfield Services revenue for the year was up 4% after increasing 15% in the first half. By year-end, the US average rig count fell to its lowest level in five years. The decline in activity in North America was offset by overall gains in the rest of the world. Our acquisition of Camco, which was completed on August 31, and the announced joint venture with M-I, of Smith International, strengthen our services with leading technology and expertise in smart completions, production services and drilling products.

Test & Transactions posted mixed results. Automated Test Equipment, after 38% growth in the first six months, declined in the second half with the tumble in semiconductor demand which drove the book-to-bill ratio for the industry to its lowest level in seven years. Smart Cards & Terminals moved aggressively toward a complete solutions approach and recorded double-digit growth in earnings and revenue. Major contributors were increasing demand for cellular phone, banking and financial applications. Growth this year outstripped that of the market and Schlumberger became the number one producer of smart cards. In October 1998, we sold Retail Petroleum Systems to Tokheim Corporation, disposing of the last business in this group that we felt did not have adequate growth potential.

Resource Management Services, which sells products and solutions for electricity, gas and water service providers, was down 7% on the year as many utilities continue struggling with deregulation and privatization.

Some of our traditional clients are already moving into the world of competitive enterprise, and we are meeting their demands for innovative products and services.

The second half of 1998 was rough riding for the oil service industry, and the first half of 1999 will also be challenging. After several years of good growth, the severity of the downturn raises questions about the future of our industry. In particular, are we experiencing a repeat of 1986 when a similar drop in the price of oil was followed by several years of sluggish growth?

Oil demand, which had grown at about 2% per year since 1985, flattened in 1998 as many parts of Asia slipped into recession. By midyear, excess capacity reached four million barrels per day, driving spot crude prices down nearly 34% year to year. The overall situation, however, is fundamentally different from 1986. In the last ten years there has been a much tighter relationship between demand and exploration and production (E&P) spending than in the early 1980s when politics, long development lead times and a severe economic recession throughout the largest consuming nations created a huge supply overhang of at least 12 million barrels per day. Today, the industry is more driven by economics than politics and new technology has shortened development cycles. As a result, the flattening of demand in 1998 has created a supply surplus of only 5% of world demand compared with 20% in 1986. The reductions in 1998 E&P spending, along with those announced for 1999, will erode today's surplus fairly quickly. We expect that as soon as Asian demand resumes its climb, there will be an up-tick in oil prices and E&P spending.

Unless there is a world recession in the making, we think that 2% growth in oil demand will resume in 2000. This rate will require developing an additional 1.5 million barrels of oil per day per year from aging oil fields—virtually a call to arms for technologists like Schlumberger. Seventy percent of today's production comes from fields that are more than 30 years old, and are approaching or in their declining years. Once a field has

produced half its recoverable reserves, production can no longer be increased. The continental United States reached that point in 1970 and production has gradually decreased ever since, despite aggressive drilling programs of the late 1970s.

The only way to extend the life of these fields is to increase recovery rates. Today only about 35% of the oil discovered is produced; the rest is left in the ground. We believe that with the appropriate technology, recovery rates can be increased to 60%. The development of these new methods represents an enormous challenge for our research and engineering communities, but the value they can bring to our clients gives Schlumberger a unique opportunity to maintain growth rates and profitability well above the industry average.

While most of the drama in 1998 occurred in the oil field, important advances were made in our other businesses.

■ Resource Management Services won several contracts to provide systems and services, starting in 1999 and fully up to speed in 2000. While these are encouraging signs, our commitment depends on how long the utilities take to convert into truly competitive businesses. We will continue to maintain our leadership in metering technology while developing aggressively these system and service growth opportunities. However, we will not accept the low returns of the last five years.

■ Smart Cards & Terminals will provide major opportunities over the next five years. The most proven market, Europe, continues to grow, and investments in Asia should result in explosive expansion. The newest market for smart card expansion, North America, shows promise: 13 million smart cards circulated in North America in 1996—a number which is expected to grow to 240 million by 2001. After ten years in the smart card industry, we have developed unmatched technology and know-how. Continuing strong growth will come from building on this leadership position through internal investments and acquisitions.

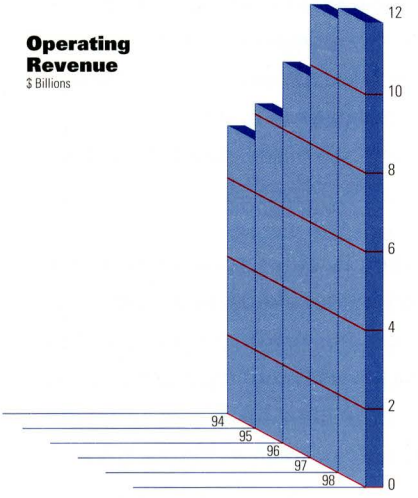
■ Automated Test Equipment (ATE) has broadened extensively its product offering and we intend to grow this business aggressively. Given our market and technology leadership, our global reach, and our entry into new segments of the industry, we will emerge from this recession strengthened. We are convinced that ATE will be a major growth business for us over the next five years.

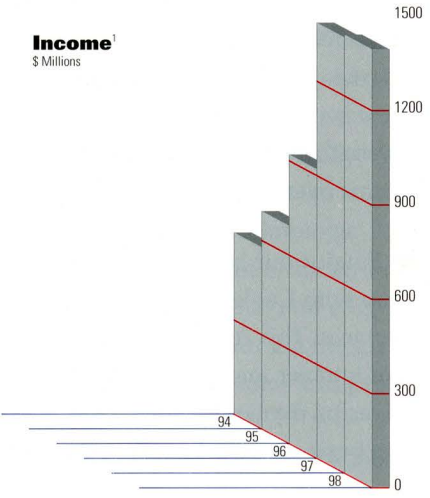
■ Finally, our baby, Cable & Wireless Omnes, is a four-year-old joint venture with Cable & Wireless providing worldwide information technology services. This combination of our technology and 14 years experience with our intranet, and Cable & Wireless' access to the telecommunications market, gives us tremendous leverage. Service revenue grew by 46% in 1998, and the business now has more than 80 commercial clients in 30 countries.

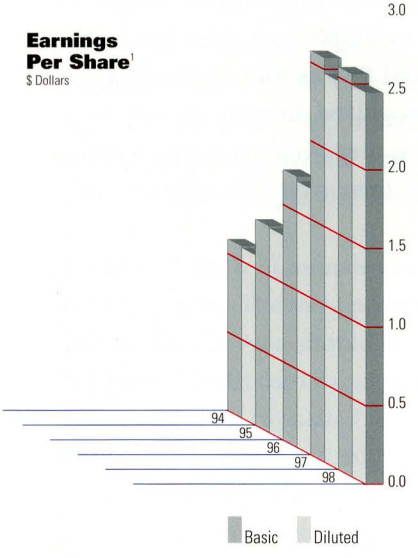
Starting with our warning in January 1998 about the effect of the Asian recession on oil demand, through the general weakness of the equity markets in the third quarter, to the announced oil company reductions in upstream expenditures for 1999, the Schlumberger stock has been under pressure all year. We are convinced that as soon as the relative short-term nature of this downturn is recognized, investor confidence will return. Short or long, Schlumberger is preparing to emerge from this downturn as it has from others—stronger than ever, with our technical leadership reinforced.

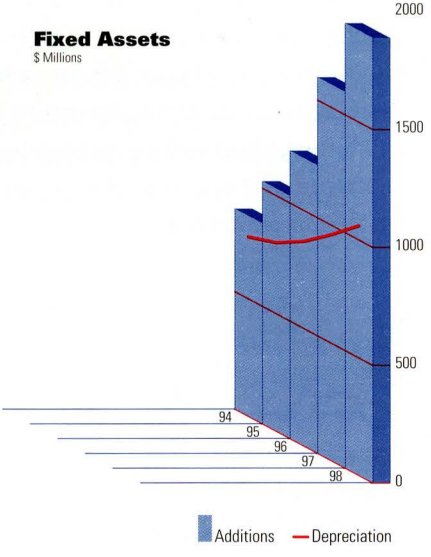
Euan Baird
Chairman & Chief Executive Officer
January 21, 1999

Schlumberger

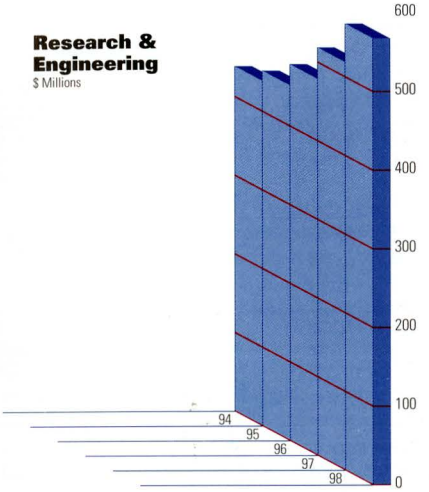


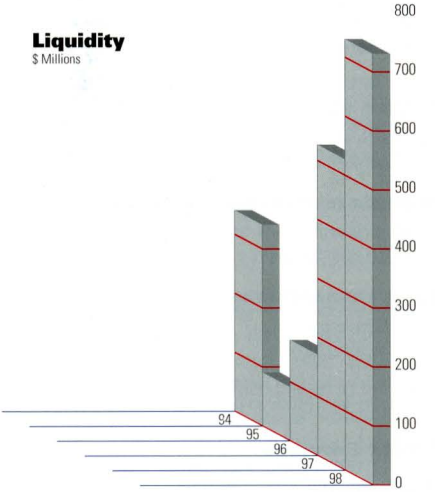


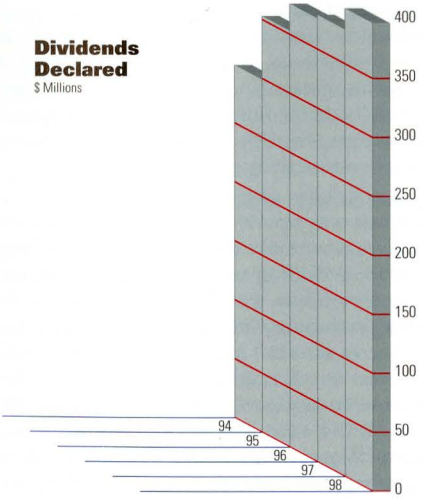


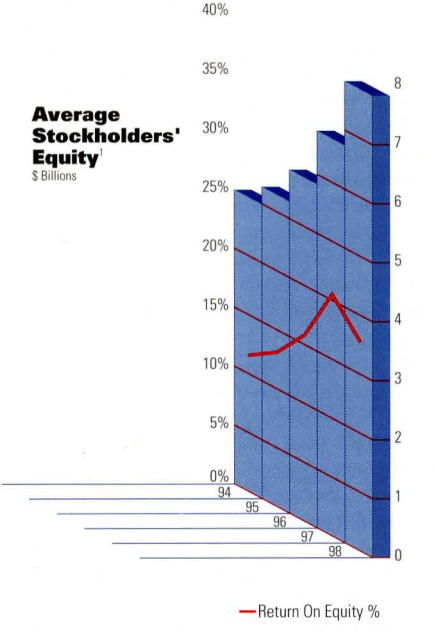


[1] 1998 Income, Earnings Per Share and Return On Equity before the $380 million third quarter charge.


Research &
Engineering
$ Millions
600
500
400
300
200
100
0
94
95
96
97
98


Liquidity
$ Millions
800
700
600
500
400
300
200
100
0
94
95
96
97
98


Dividends
Declared
$ Millions
400
350
300
250
200
150
100
50
0
94
95
96
97
98


Average
Stockholders'
Equity
$ Billions
40%
35%
30%
25%
20%
15%
10%
5%
0%
8
7
6
5
4
3
2
1
0
94
95
96
97
98
Return On Equity %

Financial Review

MANAGEMENT'S DISCUSSION AND ANALYSIS OF RESULTS OF OPERATIONS

The Company operates four businesses: Oilfield Services, Resource Management Services, Test & Transactions and Cable & Wireless Omnes. Cable & Wireless Omnes is not a reportable segment.

			(Stated in millions)
OILFIELD SERVICES	**1998**	1997	% Change
Operating Revenue	**$ 8,895**	$ 8,559	4 %
Pretax Operating Income[1]	**$ 1,766**	$ 1,765	- %
RESOURCE MANAGEMENT SERVICES			
Operating Revenue	**$ 1,465**	$ 1,569	(7) %
Pretax Operating Income[1]	**$ 50**	$ 71	(30) %
TEST & TRANSACTIONS[2]			
Operating Revenue	**$ 1,226**	$ 1,066	15 %
Pretax Operating Income[1]	**$ 74**	$ 103	(29) %

[1] Pretax operating income is before the 1998 third quarter charge.
[2] Excluding the Retail Petroleum Systems business sold on October 1, 1998.

Oilfield Services

1998 Results

After continued strong growth in the first half of the year, Oilfield Services activity slowed in the third quarter and reversed direction in the fourth quarter as oil companies reduced spending or cancelled projects.

Oilfield Services revenue grew 4%, matching the 4% increase in exploration and production expenditures, despite a decline in the average rig count of 13%. The growth resulted from continued deployment of new technologies and the impact of the new geographic organization, which focused on providing customized solutions for the customers.

NORTH AMERICA

North American revenue was 5% below last year despite a 17% decline in average rig count. The slowdown was particularly significant in the second half of the year, with the average rig count down by 38% in the fourth quarter compared with the same period last year. Wireline, testing, directional drilling and seismic services ended the year with lower revenue than in 1997, while contract drilling benefited from the transfer of the semisubmersible *Omega* to the Gulf of Mexico from West Africa. Pretax operating income dropped 35%.

LATIN AMERICA

A revenue gain of 12% in Latin America resulted from strong contract drilling, data services, wireline and testing services, despite the 12% fall in the average rig count. Revenue from Mexico increased by 25% compared with last year, with a large contribution from the Burgos gas fields. Contract drilling benefited from increased activity in Brazil with the arrival of the semisubmersible *Sedco 707* and a full year of activity on the Burgos project. Pretax operating income was 10% lower, mainly due to the reduction in activity in Venezuela.

EUROPE/CIS/WEST AFRICA

Revenue was up 4% in the Europe/CIS/West Africa region, due to increased contract drilling, directional drilling and data management services, despite an 11% fall in the average rig count (excluding CIS rigs). Revenue from the CIS increased 62%, due to the start-up of new projects in Kazakhstan and Azerbaijan. Revenue from Algeria and Tunisia was up 22%, with all five land rigs working for the entire year in Algeria. Nigeria increased 4%, reflecting strong activity from directional drilling services and increased dayrates for contract drilling. UK activity was up 4%, with strong contract drilling activity. In South Africa, revenue decreased 39%, mostly due to the reduced

drilling fluids, wireline and testing revenues. Pretax operating income increased 5%.

OTHER EASTERN HEMISPHERE

Revenue grew by 8% compared with 1997, while the average rig count increased 1%. Pretax operating income increased 13%. Asia was 10% above 1997, mainly due to East Asia and Indonesia with strong increases in all service lines, except seismic services, which was flat with last year. Revenue in the Middle East was up 5%, with the overall growth slowing in the second half of the year. In the Middle East, growth was strong in contract drilling and seismic services.

CAMCO

Camco achieved record revenue in 1998 of $948 million, 4% higher than the prior year, despite an overall decline in drilling and completion activity. Pretax operating income grew 17%. Strong sales growth was recorded for Reda electrical submersible pumps and Production Operators gas compression systems. Production Operators commenced operations on the El Furrial project, a 20-year service operating contract in Venezuela. In spite of the declining rig market, Hycalog, the market leader in polycrystalline diamond compact (PDC) bits, showed a slight increase in revenue due primarily to expansion in the Middle East and Africa. Sales were also up in Latin America despite lower drilling activity levels. Continued efforts at Reed to expand its international business with a broader product offering helped offset the 17% decline in the North American average rig count in 1998. Revenue from completion products and services was down as completion activity declined, particularly in the second half of the year.

An Advanced Completion Group was established to accelerate the development of innovative completion solutions. The Group is initially focused on multilateral completions and services, advanced instrumented completion systems and sandface completions and service support. Other complementary areas of service enhancement include drilling performance improvement and rotary steerable systems, and additional competencies for production maximization.

Highlights

NEW RIGS ON ORDER AS CONTRACT DRILLING ACTIVITY CONTRIBUTED SIGNIFICANTLY TO RESULTS

Contract drilling revenue for 1998 was 22% higher than in 1997, reflecting higher average dayrates for semisubmersibles and jackups, together with improved levels of the combined land and offshore rig utilization. The average rig utilization rate increased from 92.1% in 1997 to 92.5% in 1998.

Average offshore rig utilization in 1998 dropped from 94.1% to 93%. This decrease in utilization compared with 1997 reflects the slowdown in activity which began in the second half of the year and which caused utilization rates for semisubmersibles and jackups to fall respectively from 97.1% to 95%, and from 100% to 98.5% between year-end 1997 and year-end 1998. The average land rig utilization rate, however, increased from 89.9% in 1997 to 91.9% in 1998. At year-end, the Schlumberger rig count consisted of 83 units, comprising 49 offshore units and 34 land rigs. The fleet includes four offshore units under bareboat charter and five offshore units under management contract.

In June, Schlumberger was awarded a third long-term contract for the construction and operation of a new Sedco Express* semisubmersible rig for Marathon Oil. The rig is expected to be mobilized to the Gulf of Mexico in the third quarter of 2000 for work in water depths of up to 8500 feet [2.6 km]. In December, the first of three MPSV* multipurpose service vessels under construction, the *Prisa 101*, was delivered from its shipyard in Texas to Lake Maracaibo, Venezuela, for a multiyear contract. The MPSV concept uses small, purpose-built vessels, each equipped with an integrated package of Schlumberger services for well intervention, such as wireline logging, CTD* coiled tubing drilling service and tubing replacement. An MPSV unit can perform a well intervention faster, and at a considerably lower cost, than a full-size drilling unit.

EXPANSION OF INTEGRATED SERVICES CREATES GROWTH OPPORTUNITIES

The range of Schlumberger integrated services has expanded to include project engineering and project management for well construction, CTD service, MPSV units, IRO* Integrated Reservoir Optimization service and engineering and construction alliances. During the year, Schlumberger commenced more than 40 major integrated project contracts.

MAXIMIZING PRODUCTIVITY WITH MAXPRO* SERVICES

Launched in five major locations in Asia, Europe and North America, the MAXPRO initiative builds on the new organization and latest technology and offers solutions spanning an entire range of production services, including perforating, cement evaluation, reservoir monitoring, completion services, corrosion monitoring, well repair, production monitoring and diagnosis.

In the third quarter, Schlumberger launched the breakthrough PS PLATFORM* wireline production logging tool as one in a series of MAXPRO applications. The PS PLATFORM service provides monitoring and diagnosis of fluid flow in producing wells and enables oil and gas companies to benefit from more accurate measurements and greatly enhanced operational efficiency through real-time answers, faster operating speed and smaller, lighter and more rugged tools. PS PLATFORM technology is one of the vehicles for future developments critical to optimal management of the reservoir.

During the fourth quarter, an innovative MAXPRO production services application saved 72 hours of rig time for a major customer in the North Sea by eliminating a separate, stand-alone production logging run. The Schlumberger team successfully recorded the subsurface production of wellbore fluids while perforating a horizontal well—the first measurement of its kind in these specific conditions.

RECORD-SETTING ADVANCES IN TECHNOLOGY APPLICATION

In 1998, record-breaking advances were the hallmark of our continuing leadership in oilfield services technology deployment. Schlumberger set several world records in deepwater marine seismic, drilling and coiled tubing services.

The first horizontal well in the Gulf of Mexico drilled with coiled tubing was achieved by an integrated services team implementing an array of new Schlumberger technologies, including the VIPER* coiled tubing drilling system, STARDRILL* fluids and SLIMACCESS* logging tools.

A new seismic coverage record was set by *Geco Orion*, equipped with the new proprietary MK2 Monowing* multistreamer towing technology, towing 6 streamers, each 8 km long in a 1-km spread [5 mi by 0.625 mi]. In addition, *Geco Orion* also successfully used the MK2 Monowing technology to achieve a spread of 1400 m [4592 ft], the widest ever towed by a single vessel unassisted by tugboats.

Schlumberger seismic services achieved the first three-dimensional, time-lapse (called 4D seismic) volume map designed to show reservoir changes over the lifetime of an offshore oil field in the North Sea. Hydrophones were installed in the seabed over the reservoir in 1995, and both seabed and surface seismic surveys were run. Repeating the surveys in 1998 using the already embedded hydrophones provided two pairs of time-lapse 3D data sets to be evaluated by the oil company.

TECHNOLOGY TO ENHANCE PRODUCTIVITY AND EFFICIENCY

Revenue from nuclear magnetic resonance wireline logging increased substantially during the year, demonstrating the success of the new CMR-200* service introduced in 1998. Nuclear magnetic resonance technology allows customers to measure the volume of retrievable oil and gas in subsurface reservoirs, thereby improving the estimation of economic potential of a reservoir without costly tests.

Schlumberger further advanced the use of high-performance 3D data visualization in the oil and gas industry through the introduction of GeoViz* software and the Alternate Realities Corporation's VisionDome† system, for which Schlumberger is the exclusive licensed reseller to the industry. This combination provides geo-

scientists and engineers with the first fully immersive, portable, virtual-reality environment for constructing 3D models of subsurface reservoirs, selecting drilling targets and designing well trajectories to maximize oil and gas recovery.

The Drilling Office* suite of applications helps engineers create the optimum drilling plan by reducing costs and managing uncertainty. In November, Schlumberger acquired the TDAS* Tubular Design and Analysis System and WEST* Wellbore Simulated Temperatures software from Oil Technology Services. The addition of these two applications increases drilling engineers' efficiency and effectiveness by providing them with the most advanced tools for critical well design.

Two fluid technologies for maximizing drilling and production efficiencies were introduced. The DeepCRETE** cementing system, designed to address the challenges associated with well construction in deep water, helped customers improve performance and reduce overall costs in Norway, Gabon, Congo and Nigeria. The new STARDRILL drill-in fluid, used while drilling through the reservoir, improved hydrocarbon production rates by limiting damage to the reservoir from the drilling process in wells in Equatorial Guinea, Norway and Gabon.

With the aim of improving hydrocarbon production, the revolutionary SCALE BLASTER* application has recently been tested, and proved successful at removing scale on downhole piping. In oil and gas wells, the buildup of inorganic scale can restrict, and even prevent, the flow of hydrocarbons to the surface. SCALE BLASTER technology, deployed on coiled tubing, has provided clients with a highly effective and valuable way of improving production without a rig intervention. Furthermore, to better measure multiphase production, Schlumberger and FRAMO Engineering A.S. of Norway signed a joint venture agreement to provide surface and subsea flow meters to measure oil, gas and water flow in producing wells. A joint technology center called 3-Phase Measurement A.S., to be located in Bergen, Norway, will design and manufacture products and provide marketing and technical support.

The continuing worldwide introduction of the VISION475* MWD/LWD (measurements-while-drilling/logging-while-drilling) system for small-diameter wells has been highly successful, resulting in 50% growth compared with the fourth quarter of 1997. This application gives clients improved confidence in evaluating the growing number of horizontal and highly deviated wells and reentry wells. The use of key acoustic velocity information during drilling has significantly increased following the introduction of the slimmer 6.75-inch ISONIC* LWD tool.

1997 Results

Oilfield Services pretax operating income grew 55% over 1996, reaching $1.77 billion, with strong contributions from all activities. Operating revenue increased 24% to $8.56 billion. Worldwide oil demand increased by a strong 2.7%, fueled mainly by China, up 11%, Asia excluding China, up 6%, Latin America, up 5%, and by a recovering Russia, up 5%. Oil companies worldwide increased their exploration and production expenditures by 18% over 1996 levels to meet the increase in demand. The average rig count rose 15%.

NORTH AMERICA

North American revenue and pretax operating income grew 32% and 81%, respectively, compared with 1996. All services posted exceptional gains, with seismic services up 54%, data management up 50%, directional drilling up 38%, pressure pumping up 27%, and wireline and testing up 25%. The average rig count rose 26%.

LATIN AMERICA

Latin America experienced a revenue increase of 34%, while pretax operating income grew 13%. The main contributors were seismic services, up 88%, contract drilling, up 65%, integrated services, up 139%, and pressure pumping, up 32%. All other businesses posted gains above 15%. The average rig count declined 2%.

EUROPE/CIS/WEST AFRICA

Revenue and pretax operating income were 17% and 42% higher in the Europe/CIS/West Africa region than in 1996, largely due to higher contract drilling activity, up 31%, directional drilling, up 40% and wireline and testing services, up 13%. All other businesses posted gains above 13%, except for seismic services, which declined 8%. The average rig count fell 3%.

OTHER EASTERN HEMISPHERE

Other Eastern Hemisphere revenue climbed 24% versus 1996, mainly on increased contract drilling revenue, up 59%, directional drilling revenue, up 40%, and wireline and testing revenue, up 17%. All other businesses posted gains above 12%, except for data management services, which were not active in 1997. Pretax operating income was 57% higher than in 1996. The average rig count grew 9%.

CAMCO

Revenue was a record $914 million in 1997, a 20% increase from the prior year, primarily due to increased market activity, improved pricing in selected markets and the year-over-year impact of acquisitions. Geographically, sales were up in all regions, with the exception of the CIS. Production Operators, acquired in June 1997, contributed $115 million in sales, a 25% increase over 1996.

Highlights

In 1997, the Oilfield Services research and engineering investment of $354 million produced technologies for operating in harsher environments and reducing finding and development costs. Oilfield Services capital expenditure was $1.45 billion and allowed rapid deployment of these technologies.

In the fall of 1997, Schlumberger introduced the IRO service, which combines new-generation reservoir characterization and flow simulation tools with a team approach to evaluate various field development and production strategies. Working closely with the client, an experienced multidisciplinary team selects and implements the optimal development plan. Reservoir monitoring and control processes are included to head off future production problems. The IRO concept offers numerous benefits because it is proactive and closely links development decisions with a thorough understanding of reservoir architecture, flow dynamics and response to various well interventions with the ultimate aim of achieving near real-time, interactive reservoir management.

Construction, operating and intervention costs in oil fields were reduced in 1997 through the proliferation and improved placement of highly deviated and horizontal wells, and multilaterals drilled from a common trunk. New VISION475 technology is a slim 4.75-inch MWD/LWD service that reduces total well costs while maximizing hydrocarbon production. This is possible by allowing a reduced wellbore diameter without giving up the real-time formation evaluation measurements needed for optimum geosteering and analysis. The VISION475 application possesses unique logging sensors that allow operators to steer to the most productive zones in a formation. Worldwide deployment of this technology has significantly improved field development returns on investment for clients.

Throughout 1997, drilling activity and pricing continued to increase. The average offshore rig utilization of 94% was in line with the previous year. Jackup utilization remained at 100%, and semisubmersible utilization was 97%. The average onshore rig utilization for the year increased from 57% to 90%. At year-end, the fleet consisted of 84 units: 52 offshore and 32 onshore. The fleet includes 13 offshore units under bareboat charter or management contract. Schlumberger has eight deepwater drilling units capable of drilling in water depths of more than 3000 feet [approximately 1 km].

In July 1997, Oilfield Services received a ten-year integrated management contract in Venezuela to build and operate, on Lake Maracaibo, three new MPSV drilling barges and three new MPSV lift boats.

In August, the *Maersk Victory* jackup was acquired and renamed *Trident 19*. In September, the Schlumberger semisubmersibles *Drillstar*

and *Sedco Explorer* were sold to a newly formed venture in which Schlumberger has a 25% interest. Schlumberger is operating the rigs under bareboat charters. The gain on the sale was deferred and is being amortized over a six-year period.

In December, Schlumberger received multiyear contracts for two new-build Sedco Express semisubmersible drilling rigs. The units will be delivered in the fourth quarter of 1999. The Sedco Express rigs represent the next generation of deepwater moderate-environment drilling units. They have been designed to optimize the entire well construction process, and are expected to drill and complete a well approximately 30% faster than a conventional fourth-generation rig. The rigs will be able to operate in water depths up to 7500 feet [2.3 km].

1996 Results

Oilfield Services pretax operating income increased $386 million, or 51%, to $1.14 billion. Growth was due to strong demand and the price increases of oil and gas. Other factors included the success of new and existing services such as PLATFORM EXPRESS and LWD technologies. In addition, the strong contribution of seismic services had a significant impact. The average rig count rose 8%.

Highlights

In response to favorable market conditions, Schlumberger boosted capital expenditures for Oilfield Services by 21% in 1996.

As CTD technology provides an effective alternative to conventional drilling in reentry drilling markets, Schlumberger pressure pumping and contract drilling service businesses combined efforts to develop CTD technology, while the directional drilling business created the new VIPER slimhole directional bottomhole assembly for coiled tubing service.

The GeoSteering* tool, which enables the driller to make course corrections while drilling, made substantial gains in markets in the Far East. The *SIMPLER* 101* drilling rig, a new modular land rig, was introduced in Gabon, where it began a five-year integrated services contract in April. Several drilling fluids products, including QUADRILL*, VISPLEX* and ULTIDRILL* fluids, gained increased acceptance in 1996, in recognition of their contributions to drilling efficiency and well productivity. Marine seismic efficiency continued to improve due to aggressive deployment of the TRILOGY* onboard data management system and the Monowing multistreamer towing technology. The introduction of the fourth-generation Nessie* marine streamer, with only 54-mm [2.1-inch] outside diameter, further extended the towing capacity and efficiency of Schlumberger seismic vessels. With the ECLIPSE* reservoir simulation software, the GeoFrame* integrated reservoir characterization system and the Finder* line of data management products, Schlumberger was able to offer the oil industry the most comprehensive range of integrated software systems, data management solutions and processing and interpretation services. Tracking the flow of different fluids in horizontal and high-angle wells became possible with the newly introduced production logging technology, PL Flagship* advanced well flow diagnosis service. Building on a solid track record in well testing, the Early Production Systems group expanded significantly. Early Production Systems saw activity in the North Sea and Africa.

Average offshore rig utilization grew to 94% from 89%, aided by jackup utilization of 100% and semisubmersible utilization of 96%. At year-end, the fleet consisted of 83 rigs.

Resource Management Services

1998 Results

Ongoing deregulation, privatization and globalization have created uncertainty, which continued to hamper the ability of most utilities to invest in new products and services. The exceptions in 1998 were the utilities facing competition in the US and the UK, where data collection and interpretation are competitive tools.

Revenue for Resource Management Services

(RMS) decreased 7% in 1998, compared with the prior year. The decrease was compounded by the difficult financial environment in developing countries. Pretax operating income declined 30%, reflecting margin deterioration due to lower sales in North and South America, France and Germany. Favorable contributions came from South and Central Europe and from savings as a result of the restructuring which was initiated in late 1996.

North American revenue was down 4%, reflecting market uncertainty caused by ongoing electricity deregulation in the US, which led to investment cutbacks and order delays by customers. South American revenue also dropped as a result of lower public utility purchase requirements and further price deterioration.

Partly compensating for the declines was stronger demand in water metering associated with higher sales of Automatic Meter Reading (AMR) systems. North American orders saw significant improvement, reflecting a major system and equipment installation order recorded in the first quarter as part of the 15-year Illinois Power contract, which more than compensated for weaknesses in the residential and commercial electricity markets.

European revenue fell 7%. Depressed sales in France, the UK and Germany resulted from lower demand for electricity and gas products caused by industrial overcapacity and price competition. Revenue from South and Central Europe also fell, although higher electricity sales to EDP, the Portuguese electric company, partly offset the reduced procurement from ENEL, Italy's national electric utility. In September, Schlumberger and Itron signed business agreements in Europe and North America for the mutual licensing and distribution of AMR technology.

Revenue from Africa and the Middle East rose 29%, driven by stronger gas and water meter shipments to North Africa and Turkey. Revenue from Asia and the CIS fell due to shrinkage of local markets caused by continuing financial turbulence.

Product orders were flat versus 1997. In Europe, bookings declined in France, Germany and the UK due to the soft metering markets and reduced prices. South and Central Europe was even with last year as lower orders in Spain, the Netherlands and Belgium were offset by stronger demand from the electricity utilities in Italy and Portugal. Declines in Asia, South America and the CIS stemmed from the poor economic environment, especially in the second half of the year.

A series of new activities exemplify the repositioning of the RMS business to provide solutions for resource management. Among these successes is a Swedish utility on the island of Gotland, where Schlumberger is currently installing a two-way customer communication and network monitoring system. This solution will enable the utility to offer its customers hourly meter readings, real-time consumption billing and a wide range of value-added services.

The town of Smolensk in Russia selected the Schlumberger smart card prepayment system for gas customers in order to secure revenue and reduce waste. In South Africa, RMS was contracted to operate a revenue management system for the region of Qwa Qwa, where, in a matter of months, revenue losses as high as 50% have been greatly reduced.

During the year, several innovative products were introduced: The Flodis* water meter, the first C-class, single-jet meter with super-dry register and communication capability; the DC3 electricity meter, a full four-quadrant, polyphase, solid-state commercial and industrial meter offering a large combination of tariff structures with integrated communication capabilities; and the high-end, high-accuracy QUANTUM* Q1000 meter, which was shipped to Electricité de France. The Q1000 meter addresses the generation and transport market segment and allows the utility to provide new services to its customers, such as power quality measurement, system loss compensation and real-time communication. In November, at the Distributech trade show in London, RMS also launched the TaleXus* Vendor* system,

which is the world's first prepayment system capable of selling tokens and providing account management for electricity, gas and water resource suppliers.

1997 Results

Revenue for RMS fell 11% compared with 1996, as poor business conditions severely impacted European electricity and gas metering activity. Orders fell 8%.

The revenue decline was highest in Italy and in the UK. South American revenue grew significantly on high demand for water meters and the newly introduced single-phase, electromechanical meter. North America experienced strong water and gas meter sales.

Pretax operating income fell 36% as the deregulation and privatization of the world's utilities continued accompanied by restricted procurements.

1996 Results

Resource Management Services revenue was flat compared with 1995. The sluggish demand for electricity meters in Europe, especially in the UK and Germany, was offset by sales of gas meters led by a strong CIS market. Orders were down 2%, and pretax operating income decreased 8%, mostly from the deterioration of the European market.

Test & Transactions

1998 Results

Compared with 1997, revenue for Test & Transactions rose 15%. Smart Cards & Terminals, including the smart card-based solutions businesses, grew 31%, while Automated Test Equipment (ATE), including SABER (Schlumberger Advanced Business and Engineering Resources) services and the system service activities, was flat. Though both business segments coped with volatile business cycles, they outpaced their respective markets. In 1998, smart card volume increased more than 40% compared with the industry's growth rate of 32%. Despite an industry downturn, ATE increased market share for mixed signal and logic test systems.

This year, Test & Transactions benefited from its new organization, structured into three groups: Solutions, Products and Manufacturing. Products and Manufacturing provide product core expertise, while regional Solutions groups deliver integrated solutions and services. Each group has aligned its roles and responsibilities to put the customer at the center of everything it does. The transition to the new organization moved quickly and has enhanced quality, customer focus and integrated systems offerings.

Also during the year, the Retail Petroleum Services business was sold to Tokheim Corporation.

In 1998, Smart Cards & Terminals concentrated on growing its share of key smart card markets—mobile phones, finance and banking, municipalities (parking and mass transit) and health care. These markets are significant in both size and geographic presence, and provide substantial opportunities for the smart card-based solutions and systems integration businesses. An example of the system integration business is the successful launch of the Cyberflex* Mobile Solution. This integrated product and service offering includes a Cyberflex Simera* smart card, a software developer's kit with an easy-to-use SIMnario* graphical interface for rapid prototyping, the Aremis* subscriber identity module-based (SIM) service management system and the Aremis marketing platform. To assist the successful deployment of these systems, Schlumberger offers a wide range of consulting, engineering and turnkey project management services. This secure and flexible smart card-based solution provides new information and e-commerce services and allows mobile phone subscribers to customize application portfolios for their individual business and personal needs.

The mobile phone SIM card market exploded worldwide, as revenue grew 56% during the year. Revenue for financial and banking cards also rose 56%. The Municipalities Solutions business, which comprises smart card-based parking, pay phone and mass transit systems, grew 31% during 1998. The successful introduction of the

Stelio* parking system contributed significantly to this growth. For health care, the year ended with the delivery of five million smart cards to the French health administration. This program will continue in 1999.

For ATE, the focus was on semiconductor test equipment and the launch of the SABER services business. Strong orders in the first half of 1998 were offset by the second-half decline. Activity at ATE system services was up 15% year over year.

During the year, ATE introduced DDRAM, SDRAM and RDRAM memory test systems. The RDX2200* series of RDRAM test systems is expected to set the market standard for test accuracy, throughput and cost. The RDX2200 series of test systems developed its accuracy and performance advantage from ATE test technology in high-end logic design and test methodology. Based on the high level of interest in the RDX2200 series, ATE expects volume shipments beginning in the second quarter of 1999.

Also successfully introduced in 1998 was the IDS2000* test system. This laser-based system, focused on the emerging flip chip market, provides the same diagnostic capabilities as high-end e-beam tools. Several IDS2000 systems were installed during the year.

In 1998, the SABER services group was formed and was profitable in its first year of operation. The SABER model, which emanates from the Schlumberger service culture, is an innovative concept that provides consulting and turnkey engineering services for the semiconductor industry.

To reflect the downturn in the semiconductor business, a cost reduction plan was implemented in ATE. Investments for critical new product developments, however, were maintained and should ensure continued broadening of ATE's competitive advantage upon the industry's recovery.

1997 Results

Test & Transactions revenue was 44% higher than in 1996. The main drivers of growth were significantly greater ATE activity, increased demand for smart cards and terminals and previously announced acquisitions. Pretax operating income and orders grew 194% and 55%, respectively.

Smart Cards & Terminals revenue outpaced the 1996 level by 48%. Smart card sales rose 107%, including a 16% contribution from the Solaic activity acquired in December 1996. As demand for both microprocessor and memory cards used in cellular mobile communications, banking and pay phone applications continued to gain momentum, additional smart card production operations were established in Hong Kong and Mexico. As a result of this expansion, telecom equipment sales improved 7%.

Revenue for ATE grew 37%, compared with the year earlier. High demand for 200-MHz and 400-MHz logic testers sparked an increase of 59% in semiconductor test systems sales. Market share of ATE increased in all semiconductor test market segments. Higher automated handling systems activity resulted from deliveries of burn-in board loaders and unloaders and assembly systems. Orders increased, due largely to stronger demand for the ITS9000* family of products at Test Systems and sales of the P2X* semiconductor analysis system. In October 1997, ATE acquired Interactive Video Systems, Inc., a metrology solutions provider for the front-end semiconductor fabrication equipment market.

1996 Results

Test & Transactions revenue was 8% higher than in 1995, mostly on gains at Smart Cards & Terminals. Orders rose 10%. Pretax operating income declined 27%, as demand for semiconductor test equipment declined.

Smart Cards & Terminals activity grew 26%, including the acquisitions of Printer and Germann, on increased demand for memory and microprocessor cards for pay phones and cellular phones in China, Italy and the US. Schlumberger was the primary supplier of smart cards for the 1996 Olympic Games in Atlanta. Solaic, a French smart card manufacturer, was acquired on December 31, 1996.

Revenue for ATE was flat as higher sales of IDS10000* diagnostic systems offset reduced demand for other products.

Net Income

(Stated in millions except per share amounts)

	Net Income	Earnings per share Basic	Diluted
1998[1]	**$1,014**	**$1.87**	**$1.81**
1997	$1,385	$2.57	$2.47
1996	$ 919	$1.72	$1.69

[1] Includes an after-tax charge of $380 million ($0.68 per share–diluted). For details, see "Third Quarter 1998 Charge" on page 18.

In 1998, operating income of Oilfield Services of $1.37 billion was flat, despite a 13% decrease in average rig count. The decrease in North American activity, which was impacted by strong pricing pressure and a slowdown in activity in the second half of the year, was offset by improvements in most other areas, notably Asia and Africa. Resource Management Services operating income decreased $15 million, or 32%, largely due to market weakness as a result of industry consolidation and privatization, compounded by the financial crisis in the emerging countries. Test & Transactions operating income of $55 million was down 28% as growth in the smart cards and terminals activities was offset by a severe market decline for automated test equipment, due to curtailment of capital expenditures by the semiconductor industry in the latter half of the year.

In 1997, operating income of Oilfield Services increased $466 million, or 51%, to $1.39 billion. The growth reflected the strong increase in exploration and production spending by oil companies. These underlying factors, combined with new technology, greater efficiencies and higher dayrates, resulted in stronger pricing and higher market share. The Asian and North American markets were significant growth areas. Resource Management Services operating income decreased $41 million, or 47%, due to the adverse exchange rate effects and to a decline in the European metering activities, which were impacted by increased competition and severe price erosion. Operating income at Test & Transactions increased $38 million, or 109%, reflecting significantly increased demand for automated test equipment, smart cards and terminals, as well as higher activity in Asia.

In 1996, operating income of Oilfield Services increased $298 million, or 48%, to $920 million. Growth was due to underlying economic factors, strong demand and the price increases of oil and gas. Other factors included the success of new and existing services such as PLATFORM EXPRESS and LWD technologies. In addition, the strong contribution of seismic services had a significant impact. Resource Management Services operating income declined 6%, to $88 million, reflecting turbulence in the European electricity metering markets caused by pricing pressure and deregulation. Test & Transactions operating income was down 13%, to $35 million, mainly due to a temporary weakness in the semiconductor industry, which was affected by soft market conditions and reduced customer spending leading to postponement of product deliveries.

Currency Risks

Refer to page 28, "Translation of Non-US Currencies," in the "Notes to Consolidated Financial Statements" for a description of the Company's policy on currency hedging. There are no material unhedged assets, liabilities or commitments which are denominated in other than a business's functional currency.

While changes in exchange rates do affect revenue, especially in the Resource Management Services and Test & Transactions segments, they also affect costs. Generally speaking, the Company is currency neutral. For example, a 5% change in average exchange rates of OECD currencies would have had no material effect on consolidated revenue and net income.

In general, when the US dollar weakens against other currencies, consolidated revenue increases, usually with no material effect on net income. This is principally because the fall-through incremental margin in the Resource

Management Services and Test & Transactions segments offsets the higher Oilfield Services non-US dollar denominated expenses.

The Company's businesses operate principally in US dollars, most European currencies and most South American currencies.

Income Tax Expense

In 1996, with increasing profitability and a strong outlook in the US, the Company recognized 50% of the US income tax benefit related to its US subsidiary's tax loss carryforward and all temporary differences. This resulted in a credit of $360 million. Refer to page 34 in the "Notes to Consolidated Financial Statements" under "Income Tax Expense" for more information.

In 1997, the Company recognized the remaining 50% of its US income tax benefit, which resulted in no significant reduction of income tax expense.

Research & Engineering

Expenditures were as follows:

			(Stated in millions)
	1998	1997	1996
Oilfield Services	**$ 382**	$ 354	$ 321
Resource Management Services	**57**	61	63
Test & Transactions	**115**	89	80
Other[1]	**14**	15	15
	$ 568	$ 519	$ 479

[1] Primarily comprises the Retail Petroleum Systems business sold on October 1, 1998.

Interest Expense

Interest expense increased $55 million in 1998, following a $15-million increase in 1997. The increase in 1998 was mainly due to significantly higher debt balances incurred by the Company's principal US subsidiary resulting from the financing of the Camco acquisition.

The increase in 1997 was due to significantly higher debt balances, only partially offset by lower average borrowing rates.

Third Quarter 1998 Charge

Strong results in the first half of 1998 were sharply reversed when Asia's economic problems began to depress the region's demand for oil, gas and semiconductors. By midyear, the Company began consolidating resources and locations and making significant cuts in personnel. The third quarter after-tax charge of $380 million reflected the estimated costs of these actions. For details of the charge, see page 30.

Liquidity

A measure of financial position is liquidity, defined as cash plus short-term and long-term investments, less debt. The following table summarizes the Company's change in consolidated liquidity for each of the past three years:

			(Stated in millions)
	1998	1997	1996
Net income	**$ 1,014**	$ 1,385	$ 919
Third quarter charge	**380**	-	-
Depreciation & amortization	**1,136**	1,035	940
Increase in working capital requirements	**(149)**	(505)	(243)
Fixed asset additions	**(1,887)**	(1,592)	(1,220)
Dividends paid	**(388)**	(378)	(375)
Proceeds from employee stock plans	**139**	148	182
Businesses sold (acquired)	**61**	(31)	(185)
Net proceeds on sale of drilling rigs[1]	**-**	174	-
Other	**(102)**	121	61
Net increase in liquidity	**$ 204**	$ 357	$ 79
Liquidity–end of period	**$ 731**	$ 527	$ 170

[1] In September 1997, the Schlumberger semisubmersibles *Drillstar* and *Sedco Explorer* were sold to a newly formed venture in which Schlumberger has a 25% interest. The rigs are being operated by Schlumberger under bareboat charters. The gain on the sale has been deferred and is being amortized over a six-year period. This transaction had no significant effect on 1998 and 1997 results and has no significant impact on future results of operations.

In 1997 and 1996, the increase in working capital requirements followed the higher business activity. The major increases were in the working capital components of receivables and

inventory. In 1998, 1997 and 1996, higher fixed asset additions reflected the increase in Oilfield Services activities.

The current consolidated liquidity level, combined with liquidity expected from operations, should satisfy future business requirements.

Common Stock, Market Prices and Dividends Declared per Share

Quarterly high and low prices for the Company's common stock as reported by the New York Stock Exchange (composite transactions), together with dividends declared per share in each quarter of 1998 and 1997, were:

	Price Range		Dividends
	High	Low	Declared
1998			
QUARTERS			
First	$ 81 ½	$ 65 ⅞	$ 0.1875
Second	86 ¾	66	0.1875
Third	69 15/16	43 7/16	0.1875
Fourth	58 ¼	40 1/16	0.1875
1997			
QUARTERS			
First	$ 58 3/16	$ 49	$ 0.1875
Second	63 ¼	51 ⅛	0.1875
Third	84 ⅜	62 ⅜	0.1875
Fourth	94 7/16	72 ⅜	0.1875

The number of holders of record of the common stock of the Company at December 31, 1998, was approximately 24,500. There are no legal restrictions on the payment of dividends or ownership or voting of such shares, except as to shares held in the Company's Treasury. US stockholders are not subject to any Netherlands Antilles withholding or other Netherlands Antilles taxes attributable to ownership of such shares.

Environmental Matters

The Company and its subsidiaries comply with government laws and regulations and responsible management practices for the protection of the environment. The Consolidated Balance Sheet includes accruals for the estimated future costs associated with certain environmental remediation activities related to the past use or disposal of hazardous materials. Substantially all such costs relate to divested operations and to facilities or locations that are no longer in operation. Due to a number of uncertainties, including uncertainty of timing, the scope of remediation, future technology, regulatory changes and other factors, it is possible that the ultimate remediation costs may exceed the amounts estimated. However, in the opinion of management, such additional costs are not expected to be material relative to consolidated liquidity, financial position or future results of operations. Consistent with the Company's commitment to protection of the environment, safety and employee health, additional costs, including capital expenditures, are incurred related to current operations.

New Accounting Standards

In 1998, the Company adopted SFAS 131, "Disclosures about Segments of an Enterprise and Related Information." All prior periods have been restated. For details, see "Segment Information" in the "Notes to Consolidated Financial Statements" on pages 36-37.

In June 1998, the Financial Accounting Standards Board (FASB) issued SFAS 133, "Accounting for Derivative Instruments and Hedging Activities," which requires that the Company recognize all derivative instruments as either assets or liabilities in the statement of financial position and measure those instruments at fair value. The standard is effective in the year 2000 for the Company. Occasionally, the Company uses derivative instruments such as interest rate swaps, currency swaps, forward currency contracts and foreign currency options. Forward currency contracts provide a

hedge against currency fluctuations on assets/liabilities denominated in other than a functional currency. Options are usually entered into to hedge against currency variations on firm commitments generally involving the construction of long-lived assets such as seismic vessels and drilling rigs. The Company does not anticipate that the implementation of the new standard in 2000 will have a material effect on the consolidated financial position and results of operations.

Year 2000 Readiness Disclosure

Overview

The "Year 2000 issue" is the inability of computers and computing technology to correctly process the Year 2000 date change.

The Company recognizes that the Year 2000 issue creates a significant uncertainty to its business, and has a proactive, Company-wide Year 2000 Readiness Program (the "Program").

As part of the Program, most nonready systems are being replaced or upgraded with new systems that will provide certain competitive benefits, as well as ensure Year 2000 readiness to minimize customer and shareholder business disruptions caused by this issue. A Company-wide task force was formed in late 1997 to provide guidance to the Company's business units and monitor progress of the Program. The Company has also consulted with and engaged various third parties, including outside consultants and service providers, to assist the Company in its Program efforts.

Overall, the Program is proceeding on schedule. In 1994, the Company decided to upgrade its main internal business systems with Year 2000-ready programs. This is expected to be completed in 1999. Those aspects of the Company's internal business systems that are not scheduled to be covered by this upgrade effort are being separately addressed through an upgrade of existing legacy systems to Year 2000-ready status.

Due to the Company's centralized engineering/manufacturing profile, more than 80% of Year 2000 efforts affecting products and services have been concentrated in our major engineering and manufacturing sites. The Company's key products and services are on schedule to be Year 2000 ready by March 1999. As part of the Program, all of the Company's engineering/manufacturing business units have active Year 2000 efforts underway to meet this schedule. A Year 2000 Quality Assurance Program also is in place to maintain strong project discipline and to monitor and report Program issues and progress to management.

Also under the Program is a project to have the Company's field operating units Year 2000 ready by June 1999 on all key business applications, products and services not covered by the engineering/manufacturing efforts.

Program

The Program uses a business risk assessment and prioritization approach, and is intended to produce Year 2000-ready products/services and to minimize disruptions in business operations. The Program is divided into three major readiness categories: Assets, Information Technology (IT) and Commercial. Within each category, there are two Program stages.

STAGE I: Assessment and Preparation—this stage focuses on up-front planning, data gathering and correction planning. This includes raising Year 2000 awareness; carrying out a detailed business unit asset inventory; assessing the scope of the Year 2000 problem; determining appropriate corrections, testing/validation, acceptance and deployment approaches; and preparing project plans and budgets.

STAGE II: Repairs, Testing and Deployment—this stage focuses on "fixing" Year 2000 problems (and testing these fixes), followed by user-acceptance, redeployment and operational validation of the fixed (i.e., repaired, replaced, etc.) systems.

Assets. This category consists of (1) products and services the Company either sells or uses to provide services to our customers, and (2) hardware and software associated with embedded computer chips that are used in the operation of our products and facilities. Program progress under this category is on schedule

with the majority of Stage I activities completed; most business units are now implementing Stage II activities. The Company expects activities associated with Year 2000 readiness of assets to be completed by March 1999.

Information Technology. This category deals with traditional IT infrastructure, such as business applications, computer hardware/software, IT networks and communication equipment. The implementation of the MFG/PRO** system is on schedule and should be fully operational in all assigned areas by March 1999. Implementation of the SAP†† system is scheduled to be completed in the United States and Canada by October 1999. The Company intends to repair associated legacy systems outside the United States and Canada. This plan uses independent contractors, legacy system vendors and Company employees to rewrite and test certain software modules. This program is on schedule and expected to conclude by August 1999. The activities associated with other systems in this IT category (computer hardware/software, IT networks and communications equipment) also are on schedule. Stage I activities have been completed and the majority of the business units are implementing their Stage II activities. The Company expects activities associated with this category to be completed by mid-1999.

Commercial. This category deals with the Company's efforts to avoid being adversely affected by Year 2000 issues from external entities (suppliers, financial institutions, service providers, etc.) not affiliated with the Company. Stage I of the Program includes a process for mitigating the Year 2000 issues associated with key suppliers. The Company is communicating with its key suppliers, business partners and customers seeking their assurances that they will be Year 2000 ready. Based on responses, the Company will develop contingency plans for those areas that pose significant risk from the Year 2000 issue; however, the Company could potentially experience disruptions to some aspects of its operations from noncompliant systems utilized by unrelated third-party entities. Work in this category is on schedule. The majority of the business units have completed their Stage I activities and are implementing their Stage II efforts which are expected to be completed by April 1999.

Contingency Planning

The Company is reviewing the activities associated with each category and is determining those activities at risk of not being completed in time to prevent a Year 2000 disruption. Appropriate contingency plans are being designed for each of the "at risk" activities to provide an alternative means of functioning which minimizes the effect of the potential Year 2000 disruption, both internally and on the Company's customers. These contingency-planning activities began in December 1998 and are expected to be completed in July 1999.

Costs

Year 2000 Program funding requirements have been incorporated into the Company's capital and operating plans and are not expected to have an adverse material impact on the Company's financial condition, results of operations or liquidity. The Company estimates the cost of the Program to be around $60 million (approximately $41 million spent to date), with a breakdown of costs estimated at 30% for employee resources (approximately 120 man-years), 27% for IT-related upgrades and repair and 43% for non-IT embedded chip technology. It should be noted that these costs do not include the normal upgrading of business and financial systems that would be Year 2000 ready, such as SAP and MFG/PRO, or rationalization costs of Year 2000-ready technology already defined by our business plans.

Risks

Dates and schedules for the Company's Year 2000 Program are based on management's best estimates, which involve numerous assumptions, including, but not limited to, the results of Stage I assessments; the continued availability of certain resources; third parties' Year 2000 status and plans; and other factors. There can

be no guarantee that these estimates will be achieved, or that there will not be delays in, or increased costs associated with, implementation of the Year 2000 Program. Specific factors that might cause differences between present estimates and actual results include, but are not limited to, the availability and cost of skilled personnel, consultants, and independent contractors; the ability to locate and correct all relevant computer code; timely and effective action by third parties and suppliers; the ability to implement interfaces between Year 2000-ready systems and those systems not being replaced; and similar uncertainties. Because of the general uncertainty inherent in the Year 2000 issues (partially attributable to the interconnection of global businesses), the Company cannot confidently predict its ability to resolve appropriately all Year 2000 issues that may affect its operations and business or expose it to third-party liability. The failure to correct a Year 2000 problem could result in an interruption in, or a failure of, certain normal business activities or operations. Such failures could materially and adversely affect the Company's operations, liquidity and financial condition. Because of the uncertainties described above, the Company presently is unable to determine whether the consequences of such Year 2000 failures will have a material impact on the Company's results of operations, liquidity or financial condition.

Euro Disclosures

On January 1, 1999, the euro became the official single currency of the European Economic and Monetary Union. As of this date, the conversion rates of the national currencies of the eleven member states adopting the euro were fixed irrevocably. The national currencies will initially remain in circulation as nondecimal subunits of the euro and will be replaced by euro bills and coins by July 2002. During the transition period between January 1999 and January 2002, public and private parties may pay for goods and services using either the euro or the national currency on a "no compulsion, no prohibition" basis.

A Euro Readiness Program has been established throughout Schlumberger to ensure that all business segments meet the euro requirements. To this effect, a Euro Steering Committee has been established and, to maintain focus on the Schlumberger euro implementation program, project teams have been set up throughout the Company. Euro implementation plans cover both phases of the euro implementation. Initially these plans will ensure that, progressively through 1999, all business units of Schlumberger will be able to transact in the euro. Thereafter, the plans will ensure that during the transitional period all corporate, financial, commercial, employment and other documentation that refer to the participating currencies are converted to the euro in accordance with the regulatory requirements.

During the transition period, conversion rates can no longer be computed directly from one participating currency to another. Instead, a triangulation algorithm will be applied, which requires that national currency amounts be converted first to the euro according to the fixed conversion rates before being converted into the second national currency. This requires specific conversion modules to be included in business information systems. Furthermore, such programs will be required to provide the additional functionality needed to convert all participating currency-denominated financial data to the euro. A review of all financial information systems has commenced, and their functionality for processing euro transactions is being tested.

Schlumberger recognizes that the euro will affect its various businesses differently. Oilfield Services operates in an essentially US dollar-denominated environment in which the introduction of the euro is expected to have limited consequences. Test & Transactions will be affected in terms of the ability of products, such as smart cards and terminals, to process euro transactions. Resource Management Services, which has now set up a pan-European manufacturing structure covering all European Union markets, expects to participate in the

general growth generated by the euro. The increased price transparency created by the euro accompanied by deregulation and increased competition among our customers, the utilities, should also contribute to providing new solutions opportunities in these businesses. The full assessment of the effects the euro will have on each business segment is incomplete and, hence, the Company cannot as yet make a final conclusion on the anticipated business impact the introduction of the single currency will have.

Based upon results to date, the Company believes that the implementation of the euro can be performed according to the time frame defined by the European Union. The Company does not expect the total cost of addressing this issue to be material to financial condition, results of operations and liquidity. This cost estimate does not include the normal upgrading of business and financial systems that would be euro ready.

Market Risk

The Company does not believe it has a material exposure to market risk. The Company manages the exposure to interest rate changes by using a mix of debt maturities and variable- and fixed-rate debt together with interest rate swaps, where appropriate, to fix or lower borrowing costs. With regard to foreign currency fluctuations, the Company enters into various contracts, which change in value as foreign exchange rates change, to protect the value of external and intercompany transactions in foreign currencies. The Company does not enter into foreign currency or interest rate transactions for speculative purposes.

Forward-looking Statements

The Company cautions that, except for the historical information and discussions contained herein, statements in this annual report and elsewhere may constitute forward-looking statements. These statements include statements as to expectations, beliefs and future financial performance, such as statements regarding business prospects in the key industries in which the Company operates and growth opportunities for the Company in those industries. These statements involve a number of risks, uncertainties, assumptions and other factors that could cause actual results to differ materially from those in the forward-looking statements. While it is not possible to identify all such factors, such factors include: severity and duration of the downturn in the oil and gas and semiconductor industries, general economic and business conditions in key regions of the world and changes in business strategy or development plans relating to the Company's targeted growth opportunities.

CONSOLIDATED STATEMENT OF INCOME

(Stated in thousands except per share amounts)

Year Ended December 31,	**1998**	1997	1996
Revenue			
Operating	**$ 11,815,553**	$ 11,543,431	$ 9,701,685
Interest and other income	**181,756**	111,334	72,818
	11,997,309	11,654,765	9,774,503
Expenses			
Cost of goods sold and services	**9,034,409**	8,372,714	7,282,010
Research & engineering	**568,225**	519,365	478,875
Marketing	**467,592**	433,911	399,808
General	**454,049**	428,505	422,327
Interest	**150,161**	95,316	79,862
Unusual items	**-**	-	333,091
	10,674,436	9,849,811	8,995,973
Income before taxes	**1,322,873**	1,804,954	778,530
Taxes on income	**308,674**	420,405	(140,957)
Net Income	**$ 1,014,199**	$ 1,384,549	$ 919,487
Basic earnings per share	**$ 1.87**	$ 2.57	$ 1.72
Diluted earnings per share	**$ 1.81**	$ 2.47	$ 1.69
Average shares outstanding	**544,338**	539,330	534,298
Average shares outstanding assuming dilution	**561,855**	559,653	545,609

See *Notes to Consolidated Financial Statements*
Schlumberger Limited (Schlumberger N.V., Incorporated in the Netherlands Antilles) and Subsidiary Companies.

CONSOLIDATED BALANCE SHEET

(Stated in thousands)

December 31,	1998	1997
Assets		
Current Assets		
Cash and short-term investments	**$ 3,956,694**	$ 1,818,332
Receivables less allowance for doubtful accounts (1998–$89,556; 1997–$76,818)	**2,968,070**	2,997,010
Inventories	**1,333,131**	1,300,541
Deferred taxes on income	**295,974**	220,015
Other current assets	**251,355**	241,823
	8,805,224	6,577,721
Long-term Investments, held to maturity	**855,172**	742,751
Fixed Assets less accumulated depreciation	**4,694,465**	4,121,951
Excess of Investment Over Net Assets of Companies Purchased less amortization	**1,302,678**	1,379,412
Deferred Taxes on Income	**202,630**	174,084
Other Assets	**217,760**	189,962
	$ 16,077,929	$ 13,185,881
Liabilities and Stockholders' Equity		
Current Liabilities		
Accounts payable and accrued liabilities	**$ 2,539,954**	$ 2,514,220
Estimated liability for taxes on income	**480,123**	425,318
Bank loans	**708,978**	750,303
Dividend payable	**102,891**	93,821
Long-term debt due within one year	**86,722**	104,357
	3,918,668	3,888,019
Long-term Debt	**3,285,444**	1,179,356
Postretirement Benefits	**432,791**	414,432
Other Liabilities	**321,951**	322,905
	7,958,854	5,804,712
Stockholders' Equity		
Common stock	**1,539,408**	1,428,624
Income retained for use in the business	**8,882,455**	8,265,642
Treasury stock at cost	**(2,221,308)**	(2,249,765)
Translation adjustment	**(81,480)**	(63,332)
	8,119,075	7,381,169
	$ 16,077,929	$ 13,185,881

See *Notes to Consolidated Financial Statements*

Schlumberger Limited (Schlumberger N.V., Incorporated in the Netherlands Antilles) and Subsidiary Companies.

CONSOLIDATED STATEMENT OF CASH FLOWS

(Stated in thousands)

Year Ended December 31,	**1998**	1997	1996
Cash flows from operating activities:			
Net income	**$ 1,014,199**	$ 1,384,549	$ 919,487
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation and amortization	**1,136,290**	1,035,003	940,582
Earnings of companies carried at equity, less dividends received (1998–$4,996; 1997–$4,934; 1996–$2,948)	**(9,576)**	(1,270)	4,408
Provision for losses on accounts receivable	**36,861**	27,871	29,797
Third quarter charge	**380,000**	-	-
Other adjustments	**(58)**	(2,278)	(9,291)
Change in operating assets and liabilities:			
Increase in receivables	**(20,507)**	(647,470)	(321,980)
Increase in inventories	**(122,622)**	(220,813)	(151,340)
(Increase) decrease in deferred taxes	**(75,959)**	32,140	(31,210)
(Decrease) increase in accounts payable and accrued liabilities	**(72,940)**	175,664	188,274
Increase in estimated liability for taxes on income	**79,677**	51,215	45,192
Other–net	**(42,218)**	25,916	(73,350)
NET CASH PROVIDED BY OPERATING ACTIVITIES	**2,303,147**	1,860,527	1,540,569
Cash flows from investing activities:			
Purchases of fixed assets	**(1,887,369)**	(1,591,734)	(1,219,805)
Sales/retirements of fixed assets & other	**36,693**	97,390	113,518
Sale (purchase) of businesses	**61,662**	(28,233)	(161,635)
Net proceeds on sale of drilling rigs	**-**	174,000	-
Increase in investments	**(2,292,163)**	(867,894)	(218,914)
Decrease (increase) in other assets	**4,660**	19,453	(537)
NET CASH USED IN INVESTING ACTIVITIES	**(4,076,517)**	(2,197,018)	(1,487,373)
Cash flows from financing activities:			
Dividends paid	**(388,379)**	(377,636)	(374,489)
Proceeds from employee stock purchase plan	**70,461**	50,055	38,807
Proceeds from exercise of stock options	**68,780**	97,899	143,660
Purchase of shares for Treasury	**-**	-	(13,413)
Proceeds from issuance of long-term debt	**2,909,156**	925,579	205,009
Payments of principal on long-term debt	**(863,966)**	(419,962)	(202,026)
Net (decrease) increase in short-term debt	**(64,756)**	50,831	212,523
NET CASH PROVIDED BY FINANCING ACTIVITIES	**1,731,296**	326,766	10,071
Net (decrease) increase in cash	**(42,074)**	(9,725)	63,267
Cash, beginning of year	**147,395**	157,120	93,853
CASH, END OF YEAR	**$ 105,321**	$ 147,395	$ 157,120

See *Notes to Consolidated Financial Statements*
Schlumberger Limited (Schlumberger N.V., Incorporated in the Netherlands Antilles) and Subsidiary Companies.

CONSOLIDATED STATEMENT OF STOCKHOLDERS' EQUITY

(Dollar amounts stated in thousands)

	Common Stock						
	Issued		In Treasury		Translation Adjustment	Income Retained for Use in the Business	Comprehensive Income
	Shares	Amount	Shares	Amount			
Balance, January 1, 1996	660,746,700	$1,235,146	129,976,320	$2,414,577	$(31,382)	$6,711,298	$ -
Translation adjustment					5,756		5,756
Sales to optionees less shares exchanged	16,527	47,177	(5,314,696)	(98,631)		43	
Purchases for Treasury	(404,268)	(13,413)					
Employee stock purchase plan	1,483,494	38,807				(211)	
Net income						919,487	919,487
Dividends declared ($0.75 per share)						(375,509)	
Balance, December 31, 1996	661,842,453	1,307,717	124,661,624	2,315,946	(25,626)	7,255,108	$ 925,243
Translation adjustment					(37,706)		(37,706)
Sales to optionees less shares exchanged	395,950	37,316	(3,323,223)	(61,743)			
Employee stock purchase plan	1,399,623	50,055					
Net income						1,384,549	1,384,549
IVS acquisition		16,324	(238,812)	(4,438)			
Tax benefit on stock options		16,600					
Change in subsidiary year-end		612				4,560	
Dividends declared ($0.75 per share)						(378,575)	
Balance, December 31, 1997	663,638,026	1,428,624	121,099,589	2,249,765	(63,332)	8,265,642	$ 1,346,843
Translation adjustment					(18,148)		(18,148)
Sales to optionees less shares exchanged	796,992	40,323	(1,531,607)	(28,457)			
Employee stock purchase plan	1,266,840	70,461					
Net income						1,014,199	1,014,199
Dividends declared ($0.75 per share)						(397,386)	
Balance, December 31, 1998	665,701,858	$1,539,408	119,567,982	$2,221,308	$(81,480)	$8,882,455	$ 996,051

See *Notes to Consolidated Financial Statements*

Schlumberger Limited (Schlumberger N.V., Incorporated in the Netherlands Antilles) and Subsidiary Companies.

Notes to Consolidated Financial Statements

Summary of Accounting Policies

The Consolidated Financial Statements of Schlumberger Limited and its subsidiaries have been prepared in accordance with accounting principles generally accepted in the United States.

On August 31, 1998, Schlumberger completed the merger of Schlumberger Technology Corporation, a wholly owned subsidiary of Schlumberger, and Camco International Inc. The business combination was accounted for using the pooling-of-interests method of accounting. Accordingly, the financial statements have been prepared as if Schlumberger and Camco were combined at the beginning of the earliest period presented.

PRINCIPLES OF CONSOLIDATION

The Consolidated Financial Statements include the accounts of majority-owned subsidiaries. Significant 20%-50% owned companies are carried on the equity method and classified in *Other Assets*. The Company's pro rata share of after-tax earnings is included in *Interest and other income*. Equity in undistributed earnings of all 50%-owned companies at December 31, 1998 was not material.

USE OF ESTIMATES

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. While actual results could differ from these estimates, management believes that the estimates are reasonable.

REVENUE RECOGNITION

Generally, revenue is recognized after services are rendered and products are shipped.

TRANSLATION OF NON-US CURRENCIES

All assets and liabilities recorded in functional currencies other than US dollars are translated at current exchange rates. The resulting adjustments are charged or credited directly to the *Stockholders' Equity* section of the Consolidated Balance Sheet. Revenue and expenses are translated at the weighted-average exchange rates for the period. All realized and unrealized transaction gains and losses are included in income in the period in which they occur. The Company policy is to hedge against unrealized gains and losses on a monthly basis. Included in the 1998 results were transaction losses of $5 million, compared with a loss of $5 million in 1997 and a gain of $5 million in 1996.

Currency exchange contracts are entered into as a hedge against the effect of future settlement of assets and liabilities denominated in other than the functional currency of the individual businesses. Gains or losses on the contracts are recognized when the currency exchange rates fluctuate, and the resulting charge or credit offsets the unrealized currency gains or losses on those assets and liabilities. At December 31, 1998, contracts and options were outstanding for the US dollar equivalent of $276 million in various foreign currencies. These contracts mature on various dates in 1999 and 2000.

INVESTMENTS

Both short-term and long-term investments held to maturity are stated at cost plus accrued interest, which approximates market, and comprise primarily Eurodollar time deposits, certificates of deposit and commercial paper, Canada treasury bills, Euronotes and Eurobonds, substantially all denominated in US dollars. Substantially all the investments designated as held to maturity that were purchased and sold during the year had original maturities of less than three months. Short-term investments that are designated as trading are stated at market. The unrealized gain on such securities at December 31, 1998 was not significant.

For purposes of the Consolidated Statement of Cash Flows, the Company does not consider short-term investments to be cash equivalents as they generally have original maturities in excess of three months. Short-term investments at December 31, 1998 and 1997, were $3.9 billion and $1.7 billion, respectively.

INVENTORIES

Inventories are stated principally at average or standard cost, which approximates average

cost, or at market, if lower. Inventory consists primarily of materials and supplies.

EXCESS OF INVESTMENT OVER NET ASSETS OF COMPANIES PURCHASED

Cost in excess of net assets of purchased companies (goodwill) is amortized on a straight-line basis over periods ranging from 5 to 40 years. Accumulated amortization was $434 million and $389 million at December 31, 1998 and 1997, respectively. Of the goodwill at December 31, 1998, 53% is being amortized over 40 years, 21% is being amortized over 25 years and 26% is being amortized over periods of up to 25 years.

FIXED ASSETS AND DEPRECIATION

Fixed assets are stated at cost less accumulated depreciation, which is provided for by charges to income over the estimated useful lives of the assets by the straight-line method. Fixed assets include the manufacturing cost (average cost) of oilfield technical equipment manufactured by subsidiaries of the Company. Expenditures for renewals, replacements and improvements are capitalized. Maintenance and repairs are charged to operating expenses as incurred. Upon sale or other disposition, the applicable amounts of asset cost and accumulated depreciation are removed from the accounts and the net amount, less proceeds from disposal, is charged or credited to income.

CAPITALIZED INTEREST

The Company capitalizes interest expense during the new construction or upgrade of qualifying assets. Interest expense capitalized in 1998 was $15 million. No interest expense was capitalized in 1997 and 1996.

IMPAIRMENT OF LONG-LIVED ASSETS

The Company reviews the appropriateness of the carrying value of its long-lived assets, including goodwill, whenever events or changes in circumstances indicate that the historical cost carrying value of an asset may no longer be appropriate. The Company assesses recoverability of the carrying value of the asset by estimating the future net cash flows expected to result from the asset, including eventual disposition. If the future net cash flows are less than the carrying value of the asset, an impairment loss is recorded equal to the difference between the asset's carrying value and fair value.

TAXES ON INCOME

The Company and its subsidiaries compute taxes on income in accordance with the tax rules and regulations of the many taxing authorities where the income is earned. The income tax rates imposed by these taxing authorities vary substantially. Taxable income may differ from pretax income for financial accounting purposes. To the extent that differences are due to revenue or expense items reported in one period for tax purposes and in another period for financial accounting purposes, an appropriate provision for deferred income taxes is made.

Approximately $4.5 billion of consolidated income retained for use in the business at December 31, 1998 represented undistributed earnings of consolidated subsidiaries and the Company's pro rata share of 20%-50% owned companies. No provision is made for deferred income taxes on those earnings considered to be indefinitely reinvested or earnings that would not be taxed when remitted.

Tax credits and other allowances are credited to current income tax expense on the flow-through method of accounting.

EARNINGS PER SHARE

Basic earnings per share is computed by dividing net income by the average number of common shares outstanding during the year. Diluted earnings per share is computed by dividing net income by the average number of common shares outstanding assuming dilution, the calculation of which assumes that all stock options and warrants are exercised at the beginning of the period and the proceeds used, by the Company, to purchase shares at the average market price for the period. The following is a reconciliation from basic earnings per share to diluted earnings per share for each of the last three years:

(Stated in thousands except per share amounts)	Net Income	Average Shares Outstanding	Earnings Per Share
1998			
Basic	$ 1,014,199	544,338	$ 1.87
Effect of dilution:			
Options		9,723	
Warrants		7,794	
Diluted	$ 1,014,199	561,855	$ 1.81
1997			
Basic	$ 1,384,549	539,330	$ 2.57
Effect of dilution:			
Options		12,185	
Warrants		8,138	
Diluted	$ 1,384,549	559,653	$ 2.47
1996			
Basic	$ 919,487	534,298	$ 1.72
Effect of dilution:			
Options		6,996	
Warrants		4,315	
Diluted	$ 919,487	545,609	$ 1.69

RESEARCH & ENGINEERING

All research and engineering expenditures are expensed as incurred, including costs relating to patents or rights that may result from such expenditures.

THIRD QUARTER CHARGE

In September 1998, the Company recorded an after-tax charge of $380 million ($0.68 per share–diluted), consisting of the following:

- A charge of $268 million related to Oilfield Services, including severance costs of $64 million (5600 employees); facility closure/relocation costs of $40 million; operating asset write-offs of $114 million; and $39 million of customer receivable reserves where collection was considered doubtful due to the customers' financial condition and/or country risk. This charge resulted from the slowdown in business.
- A charge of $63 million for merger-related costs in connection with the acquisition of Camco International Inc.
- A charge of $43 million related to Resource Management Services and Test & Transactions, consisting primarily of employee severance, facility rationalizations and environmental costs resulting from a reassessment of ongoing future monitoring and maintenance requirements at locations no longer in operation.

The pretax charge of $444 million is classified in *Cost of goods sold and services*.

At December 31, 1998, $35 million of the Oilfield Services severance costs had been incurred and the majority of the terminations had been completed. Complex social/legal issues in certain European countries have caused delays in completing the headcount reduction. The reduction should be completed by June 30, 1999, and the remaining costs incurred.

In 1996, the Company announced a charge of $300 million after tax in the third quarter related primarily to the electricity, gas and seismic land and transition zone businesses. The after-tax charge of $300 million included pretax charges of $112 million for severance costs, other facility closure costs of $39 million, goodwill write-offs of $122 million and other asset impairments/charges of $60 million.

The severance costs related to less than 5% of the worldwide work force, primarily in Europe, and pertained to both manufacturing and operating personnel in about 30 locations. Most of the other facility closure costs related to the write-down of buildings, equipment and other assets to net realizable value.

In addition, the Company recorded a charge of $58 million after tax, including a loss on the divestiture of the remaining defense-related activity, certain asset impairments and other charges. The amount is classified in *Cost of goods sold and services* ($47 million) and *Taxes on income* ($11 million).

At December 31, 1998, virtually all of the severance costs had been incurred.

Acquisitions

On August 31, 1998, Schlumberger announced that the merger of Schlumberger Technology Corporation, a wholly owned subsidiary of Schlumberger, and Camco International Inc., had been completed. Under the terms of the merger agreement, approximately 38.2 million shares

of Camco common stock were exchanged for 45.1 million shares of Schlumberger common stock at the exchange rate of 1.18 shares of Schlumberger stock for each share of Camco. Based on the Schlumberger average price of $47⅞ on August 28, the transaction was valued at $2.2 billion. The business combination was accounted for using the pooling-of-interests method of accounting.

During 1997, subsidiaries of the Company acquired Interactive Video Systems, Inc. (IVS), a metrology solutions provider for the front-end semiconductor fabrication equipment market, and S.A. Holditch and Associates, Inc., a petroleum and geoscience consulting services company. These acquisitions were accounted for as purchases. Costs in excess of net assets acquired were $38 million, which are being amortized on a straight-line basis over periods of 5 and 15 years, respectively.

During 1996, subsidiaries of the Company acquired Solaic, SA, a magnetic and smart card manufacturer; an 80% interest in Printer, a magnetic stripe card manufacturer; Oilphase Sampling Services Ltd., a reservoir fluid sampling company; The Production Analyst* and OilField Manager* software products from OGCI Software, Inc.; Germann, a turnkey gasoline station provider; Guéant, a gas dispenser service company; and a 33% equity interest in DAP Technologies Limited, a developer and manufacturer of rugged handheld computer products. The purchase prices were $75 million, $9 million, $7 million, $8 million, $8 million, $7 million and $4 million, respectively. These acquisitions were accounted for as purchases. Costs in excess of net assets acquired were $91 million, which are being amortized on a straight-line basis over periods between 7 and 25 years.

Investments

The Consolidated Balance Sheet reflects the Company's investment portfolio separated between current and long term, based on maturity. Except for $125 million of investments which are considered trading at December 31, 1998 ($117 million in 1997), it is the Company's intent to hold the investments until maturity.

Long-term investments mature as follows: $255 million in 2000, $143 million in 2001 and $457 million thereafter.

At December 31, 1998, there were no interest rate swap arrangements outstanding related to investments. Interest rate swap arrangements had no material effect on consolidated interest income.

Fixed Assets

A summary of fixed assets follows:

	(Stated in millions)	
December 31,	**1998**	1997
Land	**$ 78**	$ 80
Buildings & Improvements	**1,108**	1,086
Machinery & Equipment	**10,472**	9,759
Total cost	**11,658**	10,925
Less accumulated depreciation	**6,964**	6,803
	$ 4,694	$ 4,122

Estimated useful lives of Buildings & Improvements range from 5 to 50 years and of Machinery & Equipment from 2 to 25 years. Nearly all of the Buildings & Improvements are depreciated between 30 and 40 years. For Machinery & Equipment, 27% is being depreciated over periods between 16 to 25 years, 11% over periods between 11 to 15 years and 62% over periods between 2 to 10 years.

Long-term Debt

A summary of long-term debt by currency follows:

	(Stated in millions)	
December 31,	**1998**	1997
US dollar	**$2,284**	$ 433
UK pound	**270**	122
French franc	**201**	186
German mark	**160**	118
Japanese yen	**125**	111
Italian lira	**91**	93
Canadian dollar	**80**	68
Other	**74**	48
	$3,285	$1,179

Long-term debt is at variable interest rates; the weighted-average interest rate of the debt outstanding at December 31, 1998 was 5.6%. Such rates are reset every six months or sooner. Long-term debt at December 31, 1998 approximates fair value.

Long-term debt at December 31, 1998, is due as follows: $486 million in 2000, $122 million in 2001, $254 million in 2002, $2,243 million in 2003 and $180 million thereafter.

At December 31, 1998, there were interest rate swap arrangements outstanding related to debt having a total principal amount of $37 million. Interest rate swap arrangements had no material impact on consolidated interest expense in 1998 and 1997. The exposure, in the event of nonperformance by the other parties to the arrangements, would not be significant.

Lines of Credit

At December 31, 1998, the Company's principal US subsidiary has an available unused Revolving Credit Agreement with a syndicate of banks. The Agreement provides that the subsidiary may borrow up to $1 billion until August 2003 at money market-based rates. Additionally, the Company's principal US subsidiary has available an unused five-year syndicated capital lease facility whereby it can finance up to $550 million for the construction and subsequent capital lease of two drilling rigs at money market-based rates. At December 31, 1998, the Company and its subsidiaries also had available unused lines of credit of approximately $630 million.

Capital Stock

The Company is authorized to issue 1,000,000,000 shares of common stock, par value $0.01 per share, of which 546,133,876 and 542,538,437 shares were outstanding on December 31, 1998 and 1997, respectively. The Company is also authorized to issue 200,000,000 shares of cumulative preferred stock, par value $0.01 per share, which may be issued in series with terms and conditions determined by the Board of Directors. No shares of preferred stock have been issued. Holders of common stock and preferred stock are entitled to one vote for each share of stock held.

In January 1993, Schlumberger acquired the remaining 50% interest in the Dowell Schlumberger group of companies. The purchase price included a warrant, expiring in 7.5 years and valued at $100 million, to purchase 15,153,018 shares of Schlumberger Limited common stock at an exercise price of $29.672 per share. The warrant is fully vested and nontransferable.

Stock Compensation Plans

As of December 31, 1998, the Company has two types of stock-based compensation plans, which are described below. The Company applies APB Opinion 25 and related Interpretations in accounting for its plans. Accordingly, no compensation cost has been recognized for its stock option plans and its stock purchase plan. Had compensation cost for the Company's stock-based plans been determined based on the fair value at the grant dates for awards under those plans, consistent with the method of SFAS 123, the Company's net income and earnings per share would have been the pro forma amounts indicated below:

(Stated in millions except per share amounts)

	1998	1997	1996
Net income			
As reported	**$1,014**	$1,385	$ 919
Pro forma	**$ 882**	$1,315	$ 872
Basic earnings per share			
As reported	**$ 1.87**	$2.57	$1.72
Pro forma	**$ 1.62**	$2.44	$1.63
Diluted earnings per share			
As reported	**$ 1.81**	$2.47	$1.69
Pro forma	**$ 1.57**	$2.35	$1.60

As required by SFAS 123, the above pro forma data reflect the effect of stock option grants and the employee stock purchase plan during 1998, 1997 and 1996.

STOCK OPTIONS PLANS

During 1998, 1997, 1996 and in prior years, officers and key employees were granted stock options under the Company's stock option plans. For substantially all of the stock options granted, the exercise price of each option equals the market price of the Company's stock on the date of grant; an option's maximum term is ten years, and options generally vest in 20% increments over five years.

As required by SFAS 123, the fair value of each grant is estimated on the date of grant using the multiple option Black-Scholes option-pricing model with the following weighted-average assumptions used for 1998, 1997 and 1996: Dividend of $0.75; expected volatility of 21%-25% for 1998 grants, 21% for 1997 grants and 20% for 1996 grants; risk-free interest rates for the 1998 grants of 5.59%-5.68% for officers and 4.35%-5.62% for the 1998 grants to all other employees; risk-free interest rates for the 1997 grant to officers of 6.19% and 5.80%-6.77% for the 1997 grants to all other employees; risk-free interest rates for the 1996 grants of 5.38%-6.36% for officers and 5.09%-6.01% for the 1996 grants to all other employees; and expected option lives of 6.98 years for officers and 5.02 years for other employees for 1998 grants, 7.27 years for officers and 5.09 years for other employees for 1997 grants and 8.4 years for officers and 5.39 years for other employees for 1996 grants.

A summary of the status of the Company's stock option plans as of December 31, 1998, 1997 and 1996, and changes during the years ending on those dates is presented below:

	1998		1997		1996	
FIXED OPTIONS	Shares	Weighted Average Exercise Price	Shares	Weighted Average Exercise Price	Shares	Weighted Average Exercise Price
Outstanding at beginning of year	**28,701,327**	**$43.75**	26,300,825	$31.40	23,607,281	$28.03
Granted	**1,845,143**	**$68.76**	6,822,049	$80.33	8,914,443	$38.40
Exercised	**(2,299,709)**	**$26.54**	(3,856,684)	$27.22	(5,725,467)	$26.46
Forfeited	**(666,616)**	**$52.32**	(564,863)	$35.77	(495,432)	$31.80
Outstanding at year-end	**27,580,145**	**$46.71**	28,701,327	$43.75	26,300,825	$31.40
Options exercisable at year-end	**14,480,837**		11,605,965		10,292,993	
Weighted-average fair value of options granted during the year	**$24.44**		$25.30		$11.14	

The following table summarizes information concerning currently outstanding and exercisable options by three ranges of exercise prices at December 31, 1998:

	Options Outstanding			Options Exercisable	
Range of exercise prices	Number outstanding as of 12/31/98	Weighted-average remaining contractual life	Weighted-average exercise price	Number exercisable as of 12/31/98	Weighted-average exercise price
$ 4.21 - $ 32.250	11,067,118	4.56	$ 28.916	9,308,792	$28.201
$ 32.407 - $ 51.536	9,100,558	7.10	$ 39.262	3,989,682	$37.157
$ 52.688 - $ 90.500	7,412,469	8.83	$ 82.423	1,182,363	$84.964
	27,580,145	6.55	$ 46.670	14,480,837	$36.153

EMPLOYEE STOCK PURCHASE PLAN

Under the Schlumberger Discounted Stock Purchase Plan, the Company is authorized to issue up to 22,012,245 shares of common stock to its employees. Under the terms of the Plan, employees can choose each year to have up to 10% of their annual earnings withheld to purchase the Company's common stock. The purchase price of the stock is 85% of the lower of its beginning or end of the Plan year market price. Under the Plan, the Company sold 1,266,840, 1,399,623 and 1,483,494 shares to employees in 1998, 1997 and 1996, respectively. Compensation cost has been computed for the fair value of the employees' purchase rights, which was estimated using the Black-Scholes model with the following assumptions for 1998, 1997 and 1996: Dividend of $0.75; expected life of one year; expected volatility of 34% for 1998, 28% for 1997 and 20% for 1996; and risk-free interest rates of 4.44% for 1998, 5.64% for 1997 and 5.71% for 1996. The weighted-average fair value of those purchase rights granted in 1998, 1997 and 1996, was $19.817, $17.845 and $9.73, respectively.

Income Tax Expense

The Company and its subsidiaries operate in over 100 taxing jurisdictions where statutory tax rates generally vary from 0%-50%.

Pretax book income subject to US and foreign income taxes for each of the three years ending December 31, was as follows:

(Stated in millions)

	1998	1997	1996
United States	$ 29	$ 485	$ 201
Foreign	1,294	1,320	578
Pretax income	$1,323	$1,805	$ 779

The Company had net deductible temporary differences of $1.2 billion at December 31, 1998 and $977 million at December 31, 1997. Significant temporary differences pertain to postretirement medical benefits, fixed assets, employee benefits and inventory.

The components of consolidated income tax expense were as follows:

(Stated in millions)

	1998	1997	1996
Current:			
United States–Federal	$ 126	$ 93	$ 49
United States–State	15	19	10
Foreign	272	275	221
	$ 413	$ 387	$ 280
Deferred:			
United States–Federal	$ (69)	$ 18	$ (347)
United States–State	(7)	(2)	(34)
Foreign	(28)	17	(40)
	$ (104)	$ 33	$ (421)
Consolidated taxes on income	$ 309	$ 420	$ (141)
Effective tax rate	23%	23%	- %

For the three years, the variations from the US statutory federal tax rate (35%) and the Company's effective tax rates were due to several factors, including the effect of the US operating loss carryforward in prior years and a substantial proportion of operations in countries where taxation on income is lower than in the US.

In the third quarter of 1996, with increasing profitability and a strong outlook in the US, the

Company recognized 50% of the US income tax benefit related to its US subsidiary's tax loss carryforward and all temporary differences. This resulted in a credit of $360 million.

In the second quarter of 1997, the Company released the remaining valuation allowance related to its US subsidiary's tax loss carryforward and all temporary differences. The resulting reduction in income tax expense was not significant.

Leases and Lease Commitments

Total rental expense was $360 million in 1998, $295 million in 1997 and $242 million in 1996. Future minimum rental commitments under noncancelable leases for years ending December 31 are: $157 million in 1999; $117 million in 2000; $99 million in 2001; $83 million in 2002; and $72 million in 2003. For the ensuing three five-year periods, these commitments decrease from $105 million to $5 million. The minimum rentals over the remaining terms of the leases aggregate to $55 million.

Included in the rental expenses and future minimum rental commitments above are the Schlumberger semisubmersibles *Drillstar* and *Sedco Explorer*. In September 1997, these rigs were sold to a newly formed venture in which the Company has a 25% interest. The rigs are being operated by Schlumberger under bareboat charters.

Contingencies

The Company and its subsidiaries comply with government laws and regulations and responsible management practices for the protection of the environment. The Consolidated Balance Sheet includes accruals for the estimated future costs associated with certain environmental remediation activities related to the past use or disposal of hazardous materials. Substantially all such costs relate to divested operations and to facilities or locations that are no longer in operation. Due to a number of uncertainties, including uncertainty of timing, the scope of remediation, future technology, regulatory changes and other factors, it is possible that the ultimate remediation costs may exceed the amounts estimated. However, in the opinion of management, such additional costs are not expected to be material relative to consolidated liquidity, financial position or future results of operations.

In addition, the Company and its subsidiaries are party to various other legal proceedings. Although the ultimate disposition of these proceedings is not currently determinable, in the opinion of the Company any liability that might ensue would not be material in relation to consolidated liquidity, financial position or future results of operations.

Segment Information

The Company operates four businesses: Oilfield Services (OFS), Resource Management Services (RMS), Test & Transactions (T&T) and Cable & Wireless Omnes. OFS, RMS and T&T are reportable business segments; Cable & Wireless Omnes is not a reportable segment.

The Company's OFS business falls into four clearly defined economic and geographical areas and is evaluated on the following basis: First, North America (NAM) is a major self-contained market. Second, Latin America (LAM) is composed of regional markets which share a common dependence on the United States. Third, Europe is another major self-contained market where we include the CIS, whose economy is increasingly linked to that of Europe, and West Africa. Fourth, Other Eastern includes the remainder of the Eastern Hemisphere, which consists of many countries at different stages of economic development that share a common dependence on the oil and gas industry. Camco is managed as a separate segment within OFS.

The OFS group provides exploration and production services required during the life of an oil and gas reservoir. The Company believes that all the products/services are interrelated and expects similar performance from each. The RMS group is a global provider of measurement solutions, products and systems for electricity, gas and water utilities worldwide. The T&T group supplies technology products, services and systems solutions to the semiconductor, banking, telecommunications, transportation and health care industries. The group consists of two businesses, Automated Test Equipment and Smart Cards & Terminals. Services and products are described in more detail on page 47 in this report.

Financial information for the years ended December 31, 1998, 1997 and 1996, by segment, is as follows:

(Stated in millions)

1998	NAM	LAM	Europe/ CIS/W. Afr.	Other Eastern	Camco	Elims/ Other	Total OFS	RMS	T&T	Elims/ Other	Consolidated
Revenue	$2,027	$1,190	$2,511	$2,218	$ 948	$ 1	$8,895	$1,465	$1,226	$ 230	$11,816
Operating Income	$ 160	$ 131	$ 460	$ 549	$ 123	$ (57)	$1,366	$ 32	$ 55	$ (86)	$ 1,367
Income Tax Expense[1]	84	45	74	124	66	7	400	18	19	(65)	372
Pretax Operating Income	$ 244	$ 176	$ 534	$ 673	$ 189	$ (50)	$1,766	$ 50	$ 74	$ (151)	$ 1,739
Interest Income											167
Interest Expense		$ (10)							$ (1)		(139)
Third Quarter Charge											(444)
Pretax Income											$ 1,323
Segment Assets	$1,321	$1,037	$2,154	$1,758	$1,089	$ 972	$8,331	$1,184	$1,069	$ -	$10,584
Corporate Assets											5,493
Total Assets											$16,077
Depreciation/Amortization	$ 204	$ 131	$ 271	$ 243	$ 74	$ 66	$ 989	$ 87	$ 48	$ 12	$ 1,136
Capital Expenditures	$ 288	$ 272	$ 540	$ 325	$ 131	$ 189	$1,745	$ 61	$ 53	$ 28	$ 1,887

[1] 1998 income tax expense excludes a credit of $63 million related to the Third Quarter Charge.

(Stated in millions)

1997	NAM	LAM	Europe/ CIS/W. Afr.	Other Eastern	Camco	Elims/ Other	Total OFS	RMS	T&T	Elims/ Other	Consolidated
Revenue	$2,129	$1,060	$2,412	$2,055	$ 914	$ (11)	$8,559	$1,569	$1,066	$ 349	$11,543
Operating Income	$ 263	$ 151	$ 454	$ 493	$ 104	$ (79)	$1,386	$ 47	$ 73	$(130)	$ 1,376
Income Tax Expense	111	45	57	104	57	5	379	24	30	(13)	420
Pretax Operating Income	$ 374	$ 196	$ 511	$ 597	$ 161	$ (74)	$1,765	$ 71	$ 103	$(143)	$ 1,796
Interest Income											98
Interest Expense		$ (5)							$ (1)		(89)
Pretax Income											$ 1,805
Segment Assets	$1,502	$ 988	$1,856	$1,592	$1,042	$844	$7,824	$1,219	$1,088	$ -	$10,131
Corporate Assets											3,055
Total Assets											$13,186
Depreciation/Amortization	$ 187	$ 100	$ 255	$ 213	$ 62	$ 68	$ 885	$ 93	$ 44	$ 13	$ 1,035
Capital Expenditures	$ 297	$ 281	$ 386	$ 337	$ 96	$ 52	$1,449	$ 67	$ 63	$ 13	$ 1,592

(Stated in millions)

1996	NAM	LAM	Europe/ CIS/W. Afr.	Other Eastern	Camco	Elims/ Other	Total OFS	RMS	T&T	Elims/ Other	Consolidated
Revenue	$1,613	$791	$2,066	$1,660	$765	$ (20)	$6,875	$1,765	$741	$ 321	$ 9,702
Operating Income	$ 178	$138	$ 319	$ 311	$ 70	$ (96)	$ 920	$ 88	$ 35	$(124)	$ 919
Income Tax Expense [2]	29	35	42	69	38	5	218	23	-	-	241
Pretax Operating Income	$ 207	$173	$ 361	$ 380	$108	$ (91)	$1,138	$ 111	$ 35	$(124)	$ 1,160
Interest Income											73
Interest Expense		$ (5)							$ (1)		(74)
Unusual Items											(380)
Pretax Income											$ 779
Segment Assets	$1,059	$690	$1,780	$1,392	$917	$798	$6,636	$1,389	$970	$ -	$ 8,995
Corporate Assets											2,277
Total Assets											$11,272
Depreciation/Amortization	$ 178	$ 71	$ 246	$ 198	$ 55	$ 48	$ 796	$ 102	$ 31	$ 12	$ 941
Capital Expenditures	$ 210	$171	$ 284	$ 326	$ 62	$ 35	$1,088	$ 78	$ 39	$ 15	$ 1,220

[2] 1996 income tax expense excludes (i) a credit of $22 million related to the Unusual Items and (ii) a credit of $360 million related to the US tax loss carryforward recognition.

Corporate assets largely comprise short-term and long-term investments.
During the three years ended December 31, 1998, no single customer accounted for more than 10% of consolidated revenue.
The accounting policies of the segments are the same as those described in the *Summary of Accounting Policies.*
Oilfield Services net income eliminations include certain headquarters administrative costs which are not allocated geographically, goodwill amortization and certain costs maintained at the OFS level.
The Company did not have revenue from third-party customers in its country of domicile during the last three years. In each of the three years, only revenue in the US exceeded 10% of consolidated revenue.
Revenue in the US in 1998, 1997 and 1996 was $3.4 billion, $3.5 billion and $2.8 billion, respectively.
Nonoperating expenses, such as certain intersegment charges and interest expense (except as shown above), are not included in segment operating income.

Pension and Other Benefit Plans

US Pension Plans

The Company and its US subsidiary sponsor several defined benefit pension plans that cover substantially all employees. The benefits are based on years of service and compensation on a career-average pay basis. These plans are substantially fully funded with a trustee in respect to past and current service. Charges to expense are based upon costs computed by independent actuaries. The funding policy is to contribute annually amounts that are allowable for federal income tax purposes. These contributions are intended to provide for benefits earned to date and those expected to be earned in the future.

The assumed discount rate, rate of compensation increases and return on plan assets used to determine pension expense in 1998 were 7.5%, 4.5% and 9%, respectively. In 1997, the assumptions were 8%, 4.5% and 8.5%, respectively. In 1996, the assumptions were 7.5%, 4.5% and 8.5%, respectively.

Net pension cost in the US for 1998, 1997 and 1996, included the following components:

		(Stated in millions)	
	1998	1997	1996
Service cost–benefits earned during the period	**$ 39**	$ 33	$ 31
Interest cost on projected benefit obligation	**68**	61	55
Expected return on plan assets (actual return: 1998–$167; 1997–$165; 1996–$99)	**(77)**	(63)	(57)
Amortization of transition asset	**(2)**	(2)	(2)
Amortization of prior service cost/other	**3**	4	5
Net pension cost	**$ 31**	$ 33	$ 32

Effective January 1, 1998, the Company and its subsidiaries amended their pension plans to improve retirement benefits for retired employees. The funded status at December 31, 1997, reflects the amendment.

The change in the projected benefit obligation, plan assets and funded status of the plans at December 31, 1998 and 1997, was as follows:

	(Stated in millions)	
	1998	1997
Projected benefit obligation at beginning of the year	**$ 906**	$ 776
Service cost	**39**	33
Interest cost	**68**	61
Actuarial losses	**86**	54
Benefits paid	**(46)**	(41)
Amendments	**2**	27
Special termination benefits	**9**	-
Other	**(4)**	(4)
Projected benefit obligation at end of the year	**$1,060**	$ 906
Plan assets at market value at beginning of the year	**$ 978**	$ 835
Actual return on plan assets	**167**	165
Employer contribution	**20**	19
Benefits paid	**(46)**	(41)
Plan assets at market value at end of the year	**$1,119**	$ 978
Excess of assets over projected benefit obligation	**59**	72
Unrecognized net gain	**(198)**	(203)
Unrecognized prior service cost	**50**	59
Unrecognized net asset at transition date	**(4)**	(5)
Pension liability	**$ (93)**	$ (77)

Assumed discount rate, rate of compensation increases and the expected long-term rate of return on plan assets used to determine the projected benefit obligations were 7%, 4.5%, and 9%, respectively, in 1998, and 7.5%, 4.5%, and 8.5% respectively, in 1997. Plan assets at December 31, 1998, consisted of common stocks ($722 million), cash or cash equivalents ($90 million), fixed income investments ($227 million) and other investments ($80 million). Less than 1% of the plan assets at December 31, 1998 were represented by Schlumberger Limited common stock.

Non-US Pension Plans

Outside the US, subsidiaries of the Company sponsor several defined benefit and defined contribution plans that cover substantially all employees who are not covered by statutory plans. For defined benefit plans, charges to expense are based upon costs computed by independent actuaries. These plans are substantially fully funded with trustees in respect to past and current service. For all defined benefit plans, pension expense was $17 million, $15 million and $16 million in 1998, 1997 and 1996, respectively. The only significant defined benefit plan is in the UK.

The assumed discount rate, rate of compensation increases and return on plan assets used to determine pension expense in 1998 were 7.5%, 5% and 9%, respectively. In 1997, the assumptions were 8%, 5% and 8.5%, respectively. In 1996, the assumptions were 7.5%, 5% and 8.5%, respectively.

Net pension cost in the UK plan for 1998, 1997 and 1996 (translated into US dollars at the average exchange rate for the periods), included the following components:

		(Stated in millions)	
	1998	1997	1996
Service cost–benefits earned during the period	**$18**	$16	$13
Interest cost on projected benefit obligation	**18**	15	9
Expected return on plan assets (actual return: 1998–$22; 1997–$28; 1996–$37)	**(30)**	(25)	(18)
Amortization of transition asset and other	**(6)**	(5)	(3)
Net pension cost	**$ -**	$ 1	$ 1

The change in the projected benefit obligation, plan assets and funded status of the plan (translated into US dollars at year-end exchange rates) was as follows:

	(Stated in millions)	
	1998	1997
Projected benefit obligation at beginning of the year	**$ 239**	$ 157
Service cost	**18**	16
Interest cost	**18**	15
Actuarial (gains)/losses	**(37)**	23
Benefits paid	**(9)**	(7)
Acquisition	**-**	35
Projected benefit obligation at end of the year	**$ 229**	$ 239
Plan assets at market value at beginning of the year	**$ 350**	$ 283
Actual return on plan assets	**22**	28
Employer contribution	**3**	5
Benefits paid	**(9)**	(7)
Acquisition	**-**	41
Plan assets at market value at end of the year	**$ 366**	$ 350
Excess of assets over projected benefit obligation	**137**	111
Unrecognized net gain	**(114)**	(91)
Unrecognized prior service cost	**3**	3
Unrecognized net asset at transition date	**(4)**	(4)
Pension asset	**$ 22**	$ 19

The assumed discount rate and rate of compensation increases used to determine the projected benefit obligation were 7% and 4%, respectively, in 1998 and 7.5% and 5%, respectively, in 1997; the expected long-term rate of return on plan assets was 9% in 1998 and 8.5% in 1997, respectively. Plan assets consisted of common stocks ($283 million), cash or cash equivalents ($9 million) and fixed income investments ($74 million). None of the plan assets represented Schlumberger Limited common stock.

For defined contribution plans, funding and cost are generally based upon a predetermined percentage of employee compensation. Charges to expense in 1998, 1997 and 1996, were $25 million, $25 million and $16 million, respectively.

Other Deferred Benefits

In addition to providing pension benefits, the Company and its subsidiaries have other deferred benefit programs. Expenses for these programs were $128 million, $127 million and $96 million in 1998, 1997 and 1996, respectively.

Health Care Benefits

The Company and its US subsidiary provide health care benefits for certain active employees. The cost of providing these benefits is recognized as expense when incurred and aggregated $54 million, $46 million and $42 million in 1998, 1997 and 1996, respectively. Outside the US, such benefits are mostly provided through government-sponsored programs.

Postretirement Benefits Other Than Pensions

The Company and its US subsidiary provide certain health care benefits to former employees who have retired under the US pension plans.

The principal actuarial assumptions used to measure costs were a discount rate of 7.5% in 1998 and 8% in 1997 and 1996. The overall medical cost trend rate assumption beginning December 31, 1996 was 9% graded to 5% over the next six years and 5% thereafter. Previously the overall assumption had been 10% graded to 6% over the next six years and 6% thereafter.

Net periodic postretirement benefit cost in the US for 1998, 1997 and 1996 included the following components:

		(Stated in millions)	
	1998	1997	1996
Service cost–benefits earned during the period	**$ 11**	$ 9	$ 13
Interest cost on accumulated postretirement benefit obligation	**22**	22	27
Amortization of unrecognized net gain and other	**(6)**	(6)	-
	$ 27	$ 25	$ 40

The change in accumulated postretirement benefit obligation and funded status at December 31, 1998 and 1997 was as follows:

	(Stated in millions)	
	1998	1997
Accumulated postretirement benefit obligation at beginning of the year	**$ 313**	$ 298
Service cost	**11**	9
Interest cost	**22**	22
Actuarial losses/(gains)	**18**	(5)
Benefits paid	**(11)**	(11)
Acquisition	**1**	-
Accumulated postretirement benefit obligation at end of the year	**354**	313
Unrecognized net gain	**74**	97
Unrecognized prior service cost	**5**	5
Postretirement benefit liability at December 31	**$ 433**	$ 415

The components of the accumulated postretirement benefit obligation at December 31, 1998 and 1997 were as follows:

	(Stated in millions)	
	1998	1997
Retirees	**$ 165**	$ 154
Fully eligible	**48**	51
Actives	**141**	108
	$ 354	$ 313

The assumed discount rate used to determine the accumulated postretirement benefit obligation was 7% for 1998 and 7.5% for 1997.

If the assumed medical cost trend rate was increased by one percentage point, health care cost in 1998 would have been $33 million, and the accumulated postretirement benefit obligation would have been $416 million at December 31, 1998.

If the assumed medical cost trend rate was decreased by one percentage point, health care cost in 1998 would have been $22 million, and the accumulated postretirement benefit obligation would have been $305 million at December 31, 1998.

Supplementary Information

Operating revenue and related cost of goods sold and services comprised the following:

Year ended December 31,	1998	1997	1996
		(Stated in millions)	
Operating revenue			
Sales	**$ 3,224**	$ 3,273	$ 2,931
Services	**8,592**	8,270	6,771
	$11,816	$11,543	$ 9,702
Direct operating costs			
Goods sold	**$ 2,083**	$ 2,136	$ 1,975
Services	**6,951**	6,237	5,307
	$ 9,034	$ 8,373	$ 7,282

Cash paid for interest and income taxes was as follows:

Year ended December 31,	1998	1997	1996
		(Stated in millions)	
Interest	**$ 151**	$ 93	$ 78
Income taxes	**$ 342**	$ 323	$ 213

Accounts payable and accrued liabilities are summarized as follows:

Year ended December 31,	1998	1997
	(Stated in millions)	
Payroll, vacation and employee benefits	**$ 582**	$ 586
Trade	**820**	928
Taxes, other than income	**176**	185
Other	**962**	815
	$ 2,540	$ 2,514

Interest and other income includes interest income, principally from short-term and long-term investments, of $171 million, $102 million and $76 million for 1998, 1997 and 1996, respectively.

Report of Independent Accountants

To the Board of Directors and Stockholders of Schlumberger Limited

In our opinion, the accompanying consolidated balance sheet and the related consolidated statements of income, of stockholders' equity and of cash flows present fairly, in all material respects, the financial position of Schlumberger Limited and its subsidiaries at December 31, 1998 and 1997, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 1998, in conformity with generally accepted accounting principles. These financial statements are the responsibility of the Company's management; our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits of these statements in accordance with generally accepted auditing standards which require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for the opinion expressed above.

PricewaterhouseCoopers LLP
New York, New York
January 20, 1999

Quarterly Results
(UNAUDITED)

The following table summarizes results for each of the four quarters for the years ended December 31, 1998 and 1997. Gross profit equals operating revenue less cost of goods sold and services.

(Stated in millions except per share amounts)

	Operating		Net	Earnings per share	
	Revenue	Gross Profit	Income	Basic	Diluted
Quarters–1998					
First	$ 3,024	$ 862	$ 378	$ 0.70	$ 0.67
Second	3,084	871	387	0.71	0.69
Third[1]	2,932	351	(29)	(0.05)	(0.05)
Fourth	2,776	698	278	0.51	0.50
	$ 11,816	$ 2,782	$ 1,014	$ 1.87	$ 1.81
Quarters–1997					
First	$ 2,593	$ 700	$ 280	$ 0.52	$ 0.50
Second	2,824	753	322	0.60	0.58
Third	2,971	833	384	0.71	0.68
Fourth	3,155	886	399	0.74	0.71
	$ 11,543	$ 3,172	$ 1,385	$ 2.57	$ 2.47

[1] Includes an after-tax charge of $380 million ($0.68 per share–diluted).

Five-Year Summary

(Dollar amounts stated in millions)

Year Ended December 31,	1998	1997	1996	1995	1994
SUMMARY OF OPERATIONS					
Operating revenue:					
Oilfield Services	**$ 8,895**	$ 8,559	$ 6,875	$ 5,514	$ 5,001
Resource Management Services	**1,465**	1,569	1,765	1,771	1,590
Test & Transactions	**1,226**	1,066	741	684	493
Eliminations and other[1]	**230**	349	321	299	248
Total operating revenue	**$ 11,816**	$ 11,543	$ 9,702	$ 8,268	$ 7,332
% increase over prior year	**2 %**	19 %	17 %	13 %	- %
Operating income:					
Oilfield Services	**$ 1,766**	$ 1,765	$ 1,138	$ 752	$ 594
Resource Management Services	**50**	71	111	121	104
Test & Transactions	**74**	103	35	48	44
Eliminations	**(151)**	(143)	(124)	(90)	(83)
Total operating income	**$ 1,739**	$ 1,796	$ 1,160	$ 831	$ 659
% (decrease) increase over prior year	**(3 %)**	55 %	40 %	26 %	(4 %)
Interest expense	**139**	89	74	91	69
Third quarter charge	**444**	-	-	-	-
Taxes on income[2]	**309**	420	(141)	144	99
Net income	**$ 1,014**	$ 1,385	$ 919	$ 692	$ 577
% (decrease) increase over prior year	**(27 %)**	51 %	33 %	20 %	(6 %)
Basic earnings per share	**$ 1.87**	$ 2.57	$ 1.72	$ 1.31	$ 1.09
Diluted earnings per share	**$ 1.81**	$ 2.47	$ 1.69	$ 1.30	$ 1.08
Cash dividends declared per share	**$ 0.75**	$ 0.75	$ 0.75	$ 0.7125	$ 0.60
SUMMARY OF FINANCIAL DATA					
Income as % of operating revenue[3]	**12 %**	12 %	9 %	8 %	8 %
Return on average stockholders' equity[3]	**18 %**	21 %	16 %	13 %	11 %
Fixed asset additions	**$ 1,887**	$ 1,592	$ 1,220	$ 1,028	$ 849
Depreciation expense	**$ 1,060**	$ 959	$ 868	$ 800	$ 762
Avg. number of shares outstanding:					
Basic	**544**	539	534	529	532
Assuming dilution	**562**	560	546	532	534
AT DECEMBER 31,					
Liquidity	**$ 731**	$ 527	$ 171	$ 91	$ 341
Working capital	**$ 4,887**	$ 2,690	$ 1,767	$ 1,456	$ 1,222
Total assets	**$ 16,078**	$ 13,186	$ 11,272	$ 9,770	$ 9,109
Long-term debt	**$ 3,285**	$ 1,179	$ 731	$ 731	$ 486
Stockholders' equity	**$ 8,119**	$ 7,381	$ 6,221	$ 5,501	$ 5,081
Number of employees	**64,000**	69,000	62,000	56,000	53,000

[1] Includes the Retail Petroleum Systems business sold on October 1, 1998.

[2] In 1998, the normal recurring provision for income taxes, before the tax benefit on the third quarter charge, was $373 million. In 1996, the normal recurring provision for income taxes, before recognition of the US tax loss carryforward benefit and the tax effect of the unusual items, was $206 million.

[3] In 1998, excluding the third quarter charge.

Directors

Don E. Ackerman[1,2]
Private Investor
Bonita Springs, Florida

Euan Baird[3,4]
Chairman & Chief Executive Officer
Schlumberger

John Deutch[3]
Institute Professor
Massachusetts Institute of Technology
Cambridge, Massachusetts

Victor E. Grijalva[3]
Vice Chairman
Schlumberger

Denys Henderson[2]
Chairman
The Rank Group Plc
London

André Lévy-Lang[1,3]
Chairman of the Executive Board
Paribas
Paris

William T. McCormick, Jr.[2,4]
Chairman & Chief Executive Officer
CMS Energy Corp.
Dearborn, Michigan

Didier Primat[3]
President
Primwest Holding N.V.
Curaçao, Netherlands Antilles

Nicolas Seydoux[2,4]
Chairman & Chief Executive Officer
Gaumont
Paris

Linda Gillespie Stuntz[1]
Partner
Stuntz, Davis & Staffier P.C.
Washington, D.C.

Sven Ullring[1,4]
President & Chief Executive Officer
Det Norske Veritas
Hovik, Norway

Yoshihiko Wakumoto[3]
Advisor
Toshiba Corporation
Tokyo

Officers

Euan Baird
Chairman & Chief Executive Officer

Victor E. Grijalva
Vice Chairman

Jack Liu
Executive Vice President
Chief Financial Officer

Chad Deaton
Executive Vice President

Andrew Gould
Executive Vice President

Clermont A. Matton
Executive Vice President

Irwin Pfister
Executive Vice President

James L. Gunderson
Secretary & General Counsel

Pierre E. Bismuth
Vice President-Personnel

Jean-Paul Bize
Vice President

Jean Chevallier
Vice President

Mark Danton
Vice President

Jean-Dominique Percevault
Vice President

Claude Suter
Vice President

Jean-Marc Perraud
Treasurer

Carole H. Finamore
Assistant Secretary

[1] Member, Audit Committee
[2] Member, Compensation Committee
[3] Member, Finance Committee
[4] Member, Nominating Committee

New Executives

James L. Gunderson
Secretary & General Counsel

Jim Gunderson was previously Deputy General Counsel for Schlumberger Limited, based in New York. After joining the Company in 1984, he held various positions in New York and Paris. He is admitted to the bar in New York and California. Jim has a BA degree in philosophy and a JD degree.

Jack Liu
Executive Vice President
Chief Financial Officer

Jack Liu previously held various positions in management with Measurement & Systems in Asia, and in finance with Dowell and Sedco Forex in Paris and London. He joined the Company in 1980. He has an MBA degree, and is a Certified Public Accountant.

The Schlumberger Organization

Schlumberger operates four businesses: Oilfield Services, Resource Management Services, Test & Transactions and Cable & Wireless Omnes.

Oilfield Services provides exploration and production services required during the life of an oil and gas reservoir: seismic data acquisition, processing and interpretation; drilling rigs; drilling fluids; directional drilling and real-time drilling analysis; drill bits; cementing and stimulation of wells; completion services and equipment; wireline logging; well evaluation, testing and production; gas compression systems; integrated data services and software; and project management. As of February 1, 1998, the business is organized in two groups, Solutions and Products. The *Solutions Group* is organized along geographic lines to develop, sell and implement all oilfield services, as well as customized and integrated solutions to meet specific client needs. The *Products Group* is responsible for product development across the organization as well as training and technical support for each type of service in the field to ensure the highest standards of service to clients.

Resource Management Services (RMS) is a global solutions provider to electricity, gas and water resource industry clients worldwide, helping them to manage resources and enhance transactions. The RMS group delivers innovative solutions through strategic consulting services combined with smart measurement products, systems and services for creating and sharing value with all clients. It designs systems for management of electricity distribution and usage (residential metering and energy management systems; utility revenue collection systems; commercial, industrial, transmission and distribution measurement and billing products and systems; and load management systems); systems for management of gas usage (residential, commercial and industrial gas meters; regulators, governors, safety valves, stations and systems; gas treatment including filtration, odorization and heating; network management; and prepayment systems); meters and systems for management of residential, commercial and industrial water usage covering the range of effective water distribution management and diverse heat distribution and industrial applications; meter communication systems, including remote metering and wireless communication systems for utility markets; distributed measurement solutions, systems integration and data services; and services, providing software and turnkey installation, repair and maintenance solutions to add value in fully managed projects.

Test & Transactions supplies technology, products, services and systems solutions to the semiconductor, banking, telecommunications, transportation and health care industries. Test & Transactions designs and implements broad-based, customized solutions to help clients improve time to market, optimize their business opportunities and improve their productivity. It designs and manufactures smart and magnetic stripe cards, terminals, equipment and management systems for transactions in a wide range of sectors, including telecommunications, retail and banking, network access and security, parking and mass transit, health care management and campus communities. It also designs and manufactures back-end manufacturing equipment for testing semiconductor devices, including diagnostic systems, automated handling systems and test equipment. It provides metrology solutions for the front-end semiconductor fabrication equipment market and equipment for testing complete electronic assemblies for the telecommunications and automotive industries.

Cable & Wireless Omnes provides information technology and communications services to oil and gas companies and to companies with operations in remote regions. It offers solutions for wide- and local-area networks, including satellite-based networks, network security, Internet, intranet and messaging.

STOCKHOLDER INFORMATION

Schlumberger common stock is listed on the New York Stock Exchange, trading symbol SLB, and on the Paris, London, Amsterdam and Swiss Stock Exchanges.

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The Company's 1998 annual report on Form 10-K filed with the Securities and Exchange Commission is available without charge. From the US and Canada, call 1-800-99-SLB-99. International callers dial 1-402-573-9796. Alternatively, write to the Secretary, Schlumberger Limited, 277 Park Avenue, New York, NY 10172. It can also be accessed on the Internet at http://www.slb.com/ir/

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Schlumberger

The Next Fifty Years

Rain fell all night and was still coming in buckets by noon. Dinner that evening—for 150, celebrating the 50th anniversary of Schlumberger-Doll Research—was to be in a tent in the courtyard, where the downpour roared on the canvas roof. Plan B was under consideration: dinner would move from the tent to hastily assembled tables indoors. But by 2 pm, the clouds thinned and light shone through open doors.

Nearly fifty years to the day after the founding of the first research center in Schlumberger, the celebration would begin as planned—in the courtyard, in the heart of the research center that lies at the heart of Schlumberger innovation.

Success for Schlumberger comes from innovation over the long term—to consistently dream what hasn't been dreamt, hammer inspiration into commercial products, and dream again.

In this spirit of imagination, the company celebrated the 50th anniversary of its most prolific research center with a symposium on the future of science, and a debate on climate change and the oil industry. Scientists, scholars and business leaders from more than 15 countries participated in the two-day event at the center in Ridgefield, Connecticut, USA.

Sessions covered the scientific waterfront. A Nobel Prize-winning chemist described the discovery of carbon-60, a ball-shaped form of the element. A cosmologist argued for the acceleration (not slowing) of the expansion of the universe. A geneticist examined the growing linkage between molecular biology and technology.

"All this might seem remote from the bottom line of efficiently finding and producing more oil and gas," said Philippe Lacour-Gayet, head of the Ridgefield center and chief scientist for Schlumberger. "The trick with science is that chance favors the prepared. Fifty years ago, quantum mechanics seemed like a theoretical exercise. Today, it is fundamental to the sensors we build to evaluate oil and gas reservoirs. Genetics today seems remote from the oil field. Tomorrow, genetic engineering of bacteria may help us recover more of the oil we find. In an idea factory like Schlumberger, we can't afford to shut any doors."

Here is a brief look through some of the doors that were opened during the three-day celebration that honored the past as prologue to the future.

Arrivals

Judy Sorenson, left, and Jeanette Gerfin prepare visitor badges.

Mary, center, and Goh Hock, arrive with the van pool.

Philippe Lacour-Gayet, left, and Adil Toubia, in reflection, greet arriving guests.

Welcome banner at the main entrance to Schlumberger-Doll Research.

PROGRAM

5:00 pm

Reception

WELCOME:

Euan Baird

Schlumberger Chairman and CEO

Ladies and gentlemen, good evening and welcome to Ridgefield. Thank you for accepting our invitation to this birthday party. I hope you will have a good time and find it stimulating.

I want to open with a few words on the origins of our company and this research center. Schlumberger was founded in 1927 by two French brothers, Conrad and Marcel Schlumberger, one a physicist and the other an engineer.

Early on, they were joined by a young engineer from École Polytechnique named Henri Doll. At the time, Doll was more interested in one of Conrad's daughters, Annette, than in their technology. But he was destined to play a leading role in the future of the company.

One of Doll's major achievements was the founding of this lab in 1948. He was determined that Schlumberger should become part of the scientific community of the United States, which up to that time hosted most of the technical developments of the oil industry. He was committed to maintaining strong links with the top universities and research institutes. And he believed in working closely with operations and customers so that the theoretical work done here could be verified and enhanced by field experiments.

To promote these ideas, he kept the lab small, of high quality, and porous to outside influences. To reinforce its exclusive image, he chose a young, promising architect, Philip Johnson, to design the main building. In short, Henri Doll was ahead of his time. And his ideas have marked the subsequent development of technology in Schlumberger.

Since Doll's retirement in 1965, product development centers have been created in the main intellectual communities of the world, close to the top universities and to some of our major customers. We don't believe that any culture has a monopoly on creativity. And we are convinced that diversity helps produce original solutions. This global network of modestly sized centers helps us keep abreast of technology developments throughout the world.

In the early 1980s, we were paying a heavy overhead for this approach because of poor communications. Instead of a cooperative network, we tended to have islands of activity where lack of knowledge of what was being undertaken elsewhere caused huge inefficiencies. It was at that moment that we asked Bolt, Beranek and Newman, the designers of the original intranet for the US

military, to build us a global communications system to transform the flow of information around the company.

Fifteen years later, the technology they deployed for us has become a world standard. And if I really kept going, I could convince you that Schlumberger was the key enabler in creating the Internet we know today.

A 50th birthday is a time to celebrate and to take stock. The performance of this lab has made us true believers in the value of investing in new ideas. Time and again, research undertaken here has resulted in significant improvements in services we provide to our customers. Good research not only promotes new ideas, but also limits risk in the engineering and commercialization phases.

The conviction that research is an investment in our future rather than an expense is an essential part of our culture. Our two research labs feed a product development machine that consumes more than $1 million a day. But it is the heart of our competitive advantage.

Proud as we are about what has been achieved in the last 50 years, this celebration is inspired more by our excitement about the future, and our desire to share this enthusiasm with you, customers and academics, who have contributed so much to our success.

Tomorrow's program will give you a chance to contribute your ideas about the future. The morning session will feature discussions by five distinguished scientists on the theme, "The Next 50 Years in Science and Society." The afternoon will be devoted to a subject of great importance to us all: whether human activities—and burning of fossil fuels in particular—will produce significant and rapid climate changes. I hope that the debate and the panel discussion will generate some global warming of its own.

The evaluation of climate change will require significant and painstaking research. Sound science rather than emotion needs to guide society in making the necessary decisions and trade-offs. It's a subject that cannot be treated at the level of a country or continent and is typical of the complex issues that the world will need to solve together, taking advantage of the improved communications that are forcing us together.

New communications technology is the enabler of our knowledge age—which is fast becoming an overused expression. I prefer to talk about the world of new ideas, which will touch all our lives. It will change the way universities, research institutions, companies and governments interact; the way people learn throughout their active lives, whether this learning

"The performance of this lab has made us true believers in the value of investing in new ideas. Time and again, research undertaken here has resulted in significant improvements in services we provide to our customers. Good research not only promotes new ideas, but also limits risk in the engineering and commercialization phases."

takes place in schools, universities, at work, or in the home; and the way we, Schlumberger, manage knowledge, our most significant asset.

It's an exciting world in which individuals will be more in control and yet more interdependent, where access to knowledge will no longer be the privilege of a few. It is a world where the effective use of knowledge will be a key skill for any individual, company or community.

From the first experiments performed by the Schlumberger brothers in Alsace in the 1920s, we have been in the knowledge business. And we are determined, with your help, to be a leading participant in this new world of ideas.

Euan Baird, left, and Philippe Lacour-Gayet.

7:00 pm

Dinner

KEYNOTE SPEECH:

Germaine Greer

Women and Energy

Germaine Greer shook perceptions of gender roles with her 1970 book, *The Female Eunuch*, which portrayed marriage as legalized slavery and attacked the misrepresentation of female sexuality in a male-dominated society. As a writer, lecturer and researcher, she has since continued probing conventional assumptions about gender and identity.

Her address examined differences in how females and males expend energy and view its ownership and uses. Roughly half the world's population, for example, gets most of its small amount of energy from wood—usually gathered by women, sometimes with great exertion.

"If you've ever had to survive on the energy from wood," she said, "you begin to wonder whether more energy is going into this wood than is coming out of it. I have to find it, cut it, bind it up, carry it home, cut it to size, and stack it."

In cultures dependent on fuelwood—and all others, including the developed West—women discount the cost of their own energy expenditure in keeping things moving.

"If a thing needs to be done, we just do it regardless of the effort," she said. "There's a completely different metaphysics about women's approach to their own energy as something they deploy, and men's approach to energy, which is something they commandeer."

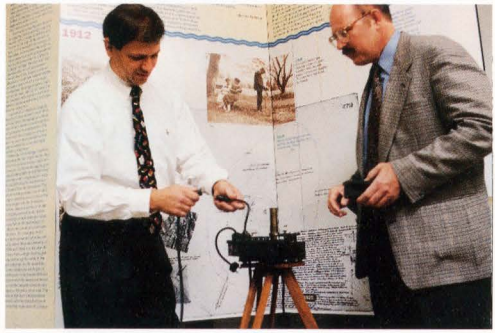
Despite their own devaluation of their effort, Greer noted that women do "two-thirds the work of the human race for ten percent of the income and one percent of the property. And this is not limited to particular civilizations, it's a universal principle. What can we do about this?"

The solution, she said, requires finding a way to let women own and control exogenous sources of energy—whether it is the right to drive oxen to mill grain, or to not wash the shower twice a week ("I would argue that most housework could be just as well left undone," she said).

"There will be no improvement if women are not brought fully into industrial processes," she said. "If we can think of a way to present energy to women as a birthright, not something to be taken from men, or to be operated in order to belittle or humiliate men, then we have a chance for success."

Goings On

Amin Amin with
Mary Jo Caliandro.



Mike Oristaglio, left, and Brian Clark with one the Schlumberger brothers' early potentiometers for measuring properties of the earth's crust.

From left, Étienne Guyon of École Normale Supérieure, Robert Kleinberg and Denise Freed with the CMR* Combinable Magnetic Resonance tool, which helps clients maximize oil recovery while minimizing production of water.

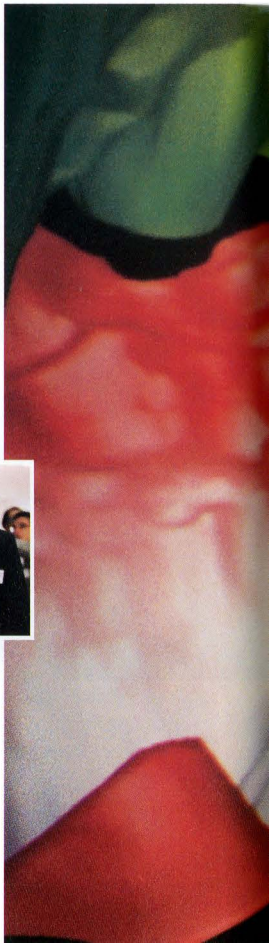
From left, Catherine Bréchignac of the Centre National de la Recherche Scientifique in Paris, Germaine Greer, Anthony Pearson, Euan Baird and Mike Sheppard.

Nick Drinkwater, left, demonstrates prototype software, developed jointly by Schlumberger and the Gas Research Institute, which allows scientists to construct three-dimensional models of oil and gas reservoirs using all available measurements and an on-line store of geologic knowledge.

Simone Crook, center, with Chad Deaton, right, greet Peter Freeman of the Georgia Institute of Technology.

Suleiman Shambe Al-Balushi, left, of the Oman Ministry of Oil and Gas, with Ekwere Peters, of the University of Texas.

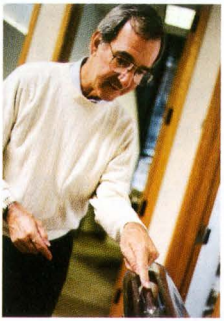
Lisa Stewart explains a computer-generated image of an oil reservoir in the VisionDome. This projection on a large, curved screen gives viewers a sense of immersion in earth's subsurface, and allows many people to collaborate simultaneously on data interpretation. In this view, green is salt, forming a trap for hydrocarbons, and pink to purple represents a layer of sand that may contain oil or gas.



Settling into the tent for dinner.

Howard Neal, left, with Ian Vann of BP.

Hallway meeting, from left: Larry Schwartz, Robert Kleinberg, Bernard Gremillet of YPF with Howard Neal, Euan Baird with Amos Nur of Stanford University.



Darwin Ellis with an experimental linear accelerator, which is lowered into wells and generates gamma rays to determine how much oil or water a rock formation might contain.

8:00 am

The Next Fifty Years in Science and Society

OPENING COMMENTS: SESSION CHAIRMAN

John Deutch
Massachusetts Institute of Technology, Cambridge

I want to say a few words about this occasion, and why I enjoy being associated with Schlumberger. The first and foremost reason is that at Schlumberger, ideas are important—they have been so since the beginning of the company. Today's symposium is an example of the value the company places on ideas.

Second, this laboratory stands for technical excellence, and, indeed, Schlumberger manages its business by putting a priority on technical excellence.

And finally, there's an international perspective you get around Schlumberger that is unique. I believe this perspective, so deeply rooted and so envied by many in the business world, is a wellspring of the company's vitality.

This morning's program, on the next fifty years in science and society, is especially timely. We are embarking on an absolutely extraordinary period, when science and technology are making contributions to a variety of enterprises, from the environment and human health, to improving our economies and improving man's and woman's understanding of the world in which we live. In this exciting time, nothing could be more appropriate or more stimulating than to have a morning when we hear people speak about the future fifty years in science and society.

We have a remarkable set of speakers and I have the pleasure of knowing some of them personally, having been with them in a variety of contexts. I do, however, intend to be a somewhat ruthless chairman since we have five absolutely fascinating talks that we are compelled to finish by lunch time.

Our first speaker is Professor Alan Guth. I won't bore you with his long string of credentials. Let me just say that Alan is one of the leaders in cosmology today. He's famous for that. He's also famous for having the office at MIT directly across the hall from my own. He will speak to us on the prospects for inflationary cosmology.

It is a great pleasure to introduce my friend and colleague, Alan Guth.

8:15 am

Prospects of Inflationary Cosmology

Alan Guth
Massachusetts Institute of Technology, Cambridge

Alan Guth bends forward when addressing his audience, as if bowed by the weight of his cosmological theory. He has the science of the origin of the universe on his mind, and a charged energy in his voice. His tools are mathematical abstractions, translated with ease into direct, simple words. He opens with the big bang theory, a widely held view of how the universe began.

"Despite its name," Guth said, "the standard version of the big bang theory is not really a theory of a bang at all. It's really only the theory of the aftermath of the bang. It says nothing about what banged, what caused it to bang, what may have happened before it banged. Inflation is essentially an attempt to answer the question of what caused the expansion. Inflation also offers a possible answer to the question: Where did all the matter in the universe come from?"

The underlying principle of inflationary theory rests on a prediction from particle physics that there should be a state of matter called the "false vacuum." This peculiar state of matter creates a gravitational repulsion. Inflation is basically the idea that a gravitational repulsion created by this false vacuum was the driving force behind the big bang itself.

Inflation creates the initial conditions that must be assumed in the context of the standard big bang theory. Inflation proposes that there was initially at least a patch of the universe—not necessarily the whole universe—that was filled with this peculiar false vacuum substance. That patch could be very small: about one-billionth the size of a proton to get the universe started. Then, because of gravitational repulsion, this tiny patch would begin to grow exponentially. In a very short period, it would become large enough to encompass what we now view as the entire observed universe. The expansion time would be incredibly short. It would double about every 10^{-37} seconds.

Is there any evidence that the universe might have done this? Guth said there is some. First, there's the fact that the universe is incredibly big. The visible part of the universe contains about 10^{90} particles. Most of these are photons that make up the cosmic background radiation and a

"Whoever built the universe, did it with extraordinary uniformity."

comparable number of neutrinos —chargeless subnuclear particles. How did all these particles get here? Whatever process made them has to be one in which it's possible to do a calculation to get the answer of 10^{90}.

"The only kinds of calculations we know how to do that give those kinds of answers are when you have exponentials," Guth said. "It's the only simple function in which you can put in a small number and get out a huge number. So inflation reduces the problem of explaining 10^{90}particles to simply explaining why the universe underwent about sixty exponential time constants of inflation. That's important progress."

Second, inflation supports what astronomers call the Hubble expansion—that any two galaxies are moving away from each other at a speed proportional to the distance between them. The standard big bang theory assumes Hubble expansion, but does not explain what caused it. It turns out that this repulsive gravity is exactly what is needed to set up the Hubble expansion pattern astronomers observe.

Third, there's the remarkable uniformity of the universe. This uniformity is observed most clearly in the cosmic background radiation, which has been measured with a very high accuracy to have the same intensity in all directions. "Whoever built the universe," Guth said, "did it with extraordinary uniformity. Inflation does this very nicely and is consistent with what we see."

Fifty years from now, where will cosmology be? "Many present unknowns will probably be answered," Guth said. "We will know the value of the Hubble constant; we will know the shape of the universe—whether it is open, closed or flat; we will know whether the expansion of the universe has changed over time. But we will probably still be a little puzzled about understanding the actual origin of the universe."

9:00am

The Sun, The Genome and the Internet

Freeman Dyson
Institute for Advanced Study
Princeton, New Jersey

For Freeman Dyson, the sun, the genome and the Internet are answers to a fundamental question of our age: How can technology build social justice?

"Technology guided by ethics has the power to help the billions of poor people all over the earth," Dyson said. "Too much of technology today is making toys for the rich. Ethics can push technology in a new direction, away from toys and toward necessities for the poor."

"Universal access to the Internet would not solve our social problems, but it would be a big step in the right direction. It could become an important tool for alleviating other kinds of inequality."

He draws on historical precedent in his argument for technology—solar energy, genetic engineering of plants and ubiquitous Internet access—as an agent of social progress.

All too often, he said, technology carries the reputation for making life more burdensome or being a tool of evil. But history shows it often works the other way. In the West, the invention of printing catalyzed the spread of literacy and the resulting Protestant Reformation. More recently, the technologies of public health, clean water supply, sewage treatment, vaccination and antibiotics broadly improve living standards. "These technologies couldn't protect the rich and powerful alone," he said. "They could be effective in protecting the rich only if they were also available to the poor. Even if the rich and powerful receive preferential treatment, as they usually do, the benefits of public health technology are felt to some extent by everyone." Where public health technology is enforced by law, he said, there is no large gap in life expectancy between rich and poor.

Once basic needs of food, shelter and clothing are met, Internet access will become essential if developing countries are to end

"Technology guided by ethics has the power to help the billions of poor people all over the earth. Too much of technology today is making toys for the rich. Ethics can push technology in a new direction, away from toys and toward necessities for the poor."

their cultural isolation and compete in the fast-changing global economy. "Universal access to the Internet would not solve our social problems," he said, "but it would be a big step in the right direction. It could become an important tool for alleviating other kinds of inequality."

A key inequality is between city and country, and the escalating flight from rural poverty and joblessness into often worse conditions in overcrowded megacities (ten cities now have populations larger than that of New York).

Solar energy, genetic engineering and the Internet can function as tools to break this cycle of poverty. Dyson's interweaving of the three technologies goes like this: Through genetic engineering, plants might be bred that are highly efficient at converting sunlight to fuel. An energy crop could be a permanent forest of trees that convert sunlight to a liquid fuel and deliver the fuel directly from their roots to a network of underground pipelines. "There's nothing in the laws of physics and chemistry to say you can't do that," Dyson said. "It is just a historical accident that plants never had an incentive to invent ways to do this."

Since solar energy is distributed equitably over the earth, a local energy crop could enable local creation of wealth in the countryside. With this energy and wealth, the Internet can become available to provide people in every village with the information and skills that they need to develop their talents.

"My dream," Dyson said, "is that solar energy, genetic engineering and the Internet will work together to create a socially just world in which every Mexican village becomes as wealthy as Princeton, New Jersey. Of course, inequalities will persist; poverty won't disappear. But I see hope that the world will move along this road. We need to apply a strong ethical push to add force to the technological pull. Ethics must guide technology in the direction of social justice."

10:00 am

Public Research and Industry

Catherine Bréchignac
Centre National de la Recherche Scientifique, Paris

The collapse of the Berlin Wall in 1989 signaled not only the end of the Cold War, but the end of the apprehension that fueled government-sponsored science and technology in both the East and West. Today, the scientific community built from Cold War fear is looking to reinvent itself to find a productive role in the increasingly free market world.

Dr. Bréchignac, who has worked most of her career in publicly funded basic science, outlined three ways public research organizations can link with the private sector and create mutual benefits:

- Collaborate on a project
- Focus public research on results that interest private industry
- Allow public research to pursue basic science that provides no commercial benefit but builds a reservoir of R&D expertise.

A productive collaboration, she said, must clear two hurdles. First, the public research organization must function as a partner with industry, not as a contractor. Second, there must be a mutual understanding and respect of different goals. "Students must be assured the possibility of publishing," she said, "and industry must be assured development of new technology." An example of this is the collaboration between Schlumberger and a French national lab in Montpellier on the development of the CENTRON* meter, an economical and highly accurate electricity meter that has no moving parts.

In the second instance—public research that leads to private investment—an example is the development of anticancer drugs from the bark and needles of the Pacific yew tree *(Taxus brevifolia)*. Some of the early work was done by publicly funded research groups in France and the United

States, such as the National Institutes of Health. The commercial problem was pace: from the discovery of the potential of the yew in the 1960s to an approved and economical drug took more than 20 years. A closer public-private collaboration, Bréchignac said, will be essential "to try to shorten the development chain to be able to make this kind of product faster."

Her third and final example deals with public research that does not interest private companies, but builds valuable R&D resources. She cited the consortium of efforts, between European and North American groups, to test whether Einstein's prediction of gravity waves is true. One of the promising tests requires a huge array of highly precise mirrors, used to bounce laser energy to measure the hypothesized distortion of space caused by the passage of gravity waves. The experimental set-up will cost millions of dollars and even if it does not detect gravity waves, there may be some economic gain from the development of the technology needed for the experiment.

This last example is the issue of the future, she said. The key challenge facing public research will be providing the reservoir of knowledge, both broad enough and disinterested enough, that can become an engine for general economic growth. Because the yield of research is low and sometimes slow paced, the cost for building such a reservoir may be too burdensome for companies, which are rightly focused only on winning prospects.

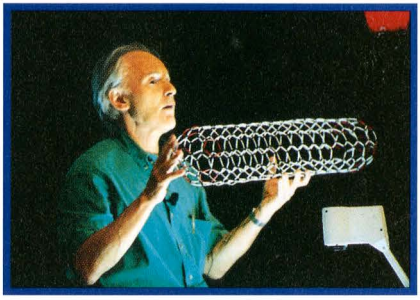
"Perhaps the most useful discussion we can have," she said, "is about the role of the state in making this balance and building a reservoir to do research. Without that reservoir, there can be no winning discoveries."

"A closer public-private collaboration will be essential to try to shorten the development chain to be able to make this kind of product faster."

10:45 am

Science, A Round Peg in a Square World

Sir Harold Kroto
University of Sussex, UK



Sir Harold Kroto did not share the 1996 Nobel Prize in chemistry because of dogged investigation along a linear path. It was more like insightful scientific hunches, good luck and the right experiments at the right time. The result was the discovery of fullerenes, a form of carbon with 60 atoms arranged in the shape of a soccer ball.

"'Not all who wander are lost,'" he said of his roundabout path, quoting the writer JRR Tolkien. "I believe this is a fundamental motto of what fundamental science is all about, and must be safeguarded."

In support of "productive wandering," Kroto cited the discovery of the therapeutic effect of platinum for the treatment of patients with cancer. The discovery came unexpectedly from studies of how live cells are affected by electrical fields—which happened to be applied with platinum electrodes.

"A large number of people are alive today," Kroto said, quoting chemist John Cornforth, "because of this unfocused but constructive work that produced an outcome no one expected. That is the essence of research. Yet, it has always been difficult to persuade those who finance research that predictable results are worthless, and that the best hope is to employ teams that make vital connections between other people's results and their own."

Kroto himself follows this approach. His discovery of fullerenes grew from his long-standing interest in carbon chains. Working with astronomers at the University of Chicago, Kroto's group found a carbon star—a late stage in the life of a star in which carbon is expelled—that was blowing long carbon chains into space. To simulate conditions that produced these chains, Kroto collaborated with a group at Rice University in Houston. In the laboratory, they vaporized graphite with a laser and detected what appeared to be stable, long carbon chains of 60 atoms.

This conflicted with conventional thinking, in which stable

"'Not all who wander are lost.' I believe this is a fundamental motto of what fundamental science is all about, and must be safeguarded."

carbon forms only shorter chains or flat sheets. How can a long, stable chain be explained? The answer emerged from a string of unexpected connections—productive wandering in action.

In 1967, Kroto had seen a geodesic dome in Montreal built by architect Buckminster Fuller using pentagons and hexagons. Could the stability of the carbon be explained if it formed such a sphere? He had built this shape himself, cutting out paper hexagons and pentagons to make a three-dimensional map of the sky for his children.

"Rick Smalley [of Rice University] and I and our students were sitting in a Mexican restaurant, and I was thinking, 'I'd better ring my wife to try and find this bloody thing, find out whether it had sixty vertices.' I told Rick, 'Look, I've got this thing at home. It's about the right size, and it's not only got hexagons, but pentagons as well.' That night, Rick played around with hexagons and got nowhere. Then he remembered that I had described the pentagons. He cut those out, and the next morning came in with this fantastic object. It was the symmetry we resolved. That bowled us over—we were so sure that it was right."

They wrote up the paper in a feverish day and a half, naming the C-60 molecule after Buckminster Fuller. In following up on the work some years later, the Sussex group managed to extract a sample of C-60. But another group, headed by Kraetschmer and Huffman, working on the same problem had submitted a paper to the journal *Nature*, which invited Kroto's review. The two groups had startlingly similar observations.

"I'm sitting with this fax [of the *Nature* paper] on my desk," Kroto said. "It was twelve noon, time to go to lunch ... or should I commit suicide? In England, often there is not a lot of difference."

In the end, although the Sussex and Rice group won the prize for the discovery, Kroto said both groups deserve credit.

Since then, Kroto has developed educational programs for television** while devoting much of his time to the science of C-60. If the molecule could be made in quantities, and extended feet, yards or miles, it would have 50 to 100 times the strength of steel at one sixth the weight. "If we can make that," he said, "we will revolutionize 21st century civil engineering and electronics."

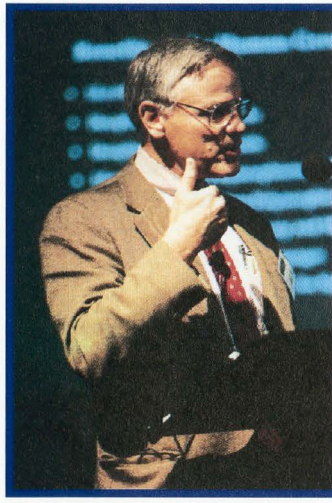
**Kroto is a cofounder of the Vega Science Trust (www.vega.org.uk), a not-for-profit science broadcast organization.

11:30 am

Genes, Genomes and Society

Leroy Hood

University of Washington, Seattle



To demonstrate the difficulty of looking forward 50 years, Leroy Hood looked back to a 1948 biology textbook to see what the future looked like from there. The book said: "It has been well said that genes are known more by what they do than what they are. They are thought to be large, highly complex protein molecules. They may act like enzymes to speed up or retard chemical reactions."

"In 1948," Hood said, "we knew that proteins are combinations of a class of compounds called amino acids, but we had no idea how the amino acids were strung together. Knowing neither the structure of DNA [deoxyribonucleic acid], nor the structure of proteins, it would have been impossible to pick any of the major occurrences we see today—the DNA revolution or the implications that come from the genome[††] project."

The genome project is a microrevolution in genetic mapping that will have mega-scale effects on diagnosis, treatment and prevention of disease. It will unveil not only a deeper understanding of DNA, but also of proteins coded by DNA, and clarify how cells use these proteins. The end of one goal is in sight: a complete sequence of all three billion base pairs of DNA in the human genome.

For Hood, however, the most important result of the human genome project will be a series of paradigmatic changes in biology over the coming decades. He predicted these will include:

- Biology becomes an informational, not descriptive, science. It will deal with the digital information of DNA and the three-dimensional information of protein folding controlled by DNA.
- A stronger marriage will emerge between applied mathematics, computer science and biology. Not only can biology

[††]The genome is the complete set of genes present in a cell. Mapping these genes will provide keys to the structure and function of cells and of the whole organism.

"It's my belief that [neurotransmitters] are the key to therapy for virtually all mental diseases, which result from communication failures at the chemical level."

profit from computer science, but also vice versa. "Biology had 3.7 billion years ... to optimize strategies for manipulating the digital information of our chromosomes," Hood said. "And some of those strategies offer new insights into how computer scientists might want to think about dealing with information from their own realm."

• Biology also becomes a systems science. It concerns understanding the informational pathways that operate organisms, and how systems properties arise. "It's my belief," Hood said, "that [neurotransmitters] are the key to therapy for virtually all mental diseases, which result from communication failures at the chemical level."

• Application of systems biology will revolutionize the study of disease. In the future, 5000 different proteins could be analyzed in a single drop of blood, yielding fundamental insights into metabolism and genetic condition.

Most importantly, the genome work will envelop social issues. Once genes for longevity are identified, for example, medicine won't extend life span, but extend our productive lives. "This is going to cause society to have to rethink how it deals with older people," Hood said, "and that's going to obviously be a major kind of transition."

Perhaps the most important social issue, he said, is taking advantage of the key developmental window when children are most receptive to learning. He advocates means of maximizing each child's chance for full development: "Whatever home you came from, you would then go to school with the potential of exploiting your natural, intrinsic abilities. I've argued for a long time that I think every scientist should spend five to ten percent of their time reaching out to the education of our children. I think it's perhaps the most important problem that exists."

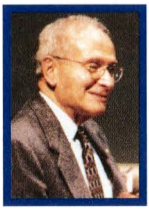
DEBATE AND PANEL DISCUSSION

1:30 pm

Complication, Remediation and Accommodation in Global Warming

RESOLVE:
Global warming demands that Earth stop burning fossil fuels within the next 50 years (i.e., if they don't run out anyway).

DEBATE SESSION CHAIRMAN



Frank Press
The Advisory Group

Global warming issues are as much about science advising as about politics. The scientist-advisor must separate his or her values, bias or ideology from adherence to the scientific method. Because decisions have to be made, advice is often based on incomplete data and their uncertain interpretation. Often we must advise a policy maker whose mind is already made up. Advising is not an easy job for any scientist. Today, we are fortunate to have this issue debated by two highly qualified individuals. You couldn't ask for a better team to lay out the issues for you.

THE DEBATERS

James Hansen
NASA Goddard Institute for Space Studies

Linkage is clear between carbon dioxide [CO_2] released into the atmosphere and global warming, since CO_2 retards loss of heat to space. Greenhouse gases, including CO_2, are accepted as the largest global climate forcing (an imposed perturbation of the earth's energy balance with space, measured in watts per meter^2). These gases are also the fastest growing of these forcings, and it's clear that human-caused climate forcings are larger than the known natural climate forcings on the time scales of decades to centuries, such as changes in solar output and volcanic dust. Doubling of CO_2 emission would cause an eventual warming of about 3° Celsius.

Our climate model predictions track well with the facts. Our first predictions 20 years ago forecast a warming of about 0.25°C from the late 1970s to now. This change, we argued, would be sufficient to bring the warming out of the noise level. In fact, measured data

support the prediction, and there is general agreement that the warming of the past few decades is now probably too large to be natural variability. Recession of glaciers nearly worldwide over the past century is used to infer a global warming of about 0.8°C in the past hundred years.

Two courses of action are needed: (1) The energy industry must take the lead in finding energy sources other than coal which can take over as oil and gas are depleted; (2) CO_2 emissions should be restricted during the next few decades to limit greenhouse input and to discourage descent down the path to coal as the dominant energy alternative.

Richard Lindzen
Massachusetts Institute of Technology

The nature of climate change is not simply a model of gross forcing and gross response. The climate is a three-dimensional system that has a great deal of complexity and, indeed, past climate change was not so much a change in the mean temperature as a change in the temperature difference between the equator and pole.

Noise in the data is still a problem: the natural variance in the global mean is on the order of a few tenths of a degree. The natural variance for North America as a whole is on the order of a degree. Considered with care, climate data do show a warming trend to 1940, but afterwards, there is too much variation in the data to conclude that the trend continues. Complicating matters, satellite data measure tropospheric temperature, which is different from historic and present measures of surface temperature.

Further, the conventional model of how greenhouse gases work involves simply one-dimensional convection and radiation based on average properties. In fact, this model is flawed because the real atmosphere has sharp horizontal gradients with distinct nonlinear properties. As a consequence, global temperature can wobble by just changing where the circulation deposits heat.

It's not clear that action is needed, since data about a change in temperature, or the cause of such change, are inconclusive. Further, even if warming were a fact, warm periods have been historically viewed as benign. In the end, politicization of this scientific issue ends in marginalization, trivialization and corruption of the science necessary to answer important environmental questions.

THE PANELISTS

Wallace Broecker
Columbia University

"If we look at the climate record for the last hundred thousand years or so, there's no question that our climate is an angry beast. It has done outrageous things. The question now is whether the kind of push that we're giving it has any chance of causing a similar change."

V. (Ram) Ramanathan
Scripps Institution of Oceanography

"When I hear the debate between Hansen and Lindzen, I think the heart of the problem is imperfect temperature records. They were not collected uniformly. They were not collected with the purpose of detecting a trend, so you can argue the case for or against warming. A priority might be to improve the quality of our observations."

William Nordhaus
Yale University

"If global warming proves to be a dangerous threat, what could we do? There are three categories of responses. First, we could slow the growth in CO_2 emissions by reducing energy use. The best approach here would be to raise energy prices (proportional to their carbon content). Second, we could conceivably engage in climatic engineering, such as pumping CO_2 into the bowels of the ocean. Third (which we will do in any case), societies can adapt to a warmer climate. This would involve migrations of populations and capital, research on high-CO_2 crops, and research on malaria and other vector-borne diseases if they start migrating into advanced countries."

Jorge Sarmiento
Princeton University

"Until about the turn of this century, most of the CO_2 released to the atmosphere was from deforestation. But in the last many decades, the fossil fuel emissions have been the greatest input of CO_2 to the atmosphere."

Frank Press
The Advisory Group

"The time window for hydrocarbons is longer in my belief than most people think, and that's because of new technology for exploration and production and natural gas. There is a huge amount of gas, and undeveloped gas resources, around in the world. These will take us longer than we think to use up."

PANEL DISCUSSION CHAIRMAN

Karl Turekian
Yale University

"If Dick [Lindzen] is right and there's no warming, no problem. We can go on using fossil fuels. On the other hand, if the warming is greater than the models predict, then I think everybody would agree that we have to make a serious attempt to cut back [CO_2 emissions]. As Frank [Press] suggests, the no-regrets policy seems the prudent choice."

To strengthen our culture of excellence, the Performed by Schlumberger program will be launched companywide in 1999. The program is based on the Schlumberger Promise:

Every person in Schlumberger is committed to deliver the best possible performance—anytime, anywhere. Our culturally diverse teams innovate to create new standards of excellence that surpass our customers' expectations.

At Schlumberger, what matters is getting the job done right.

The program is incorporated into personnel recruiting, training and appraisal policy and includes grassroots events to promote our culture of excellence. The program is carried forward through the recognition of people for a product or service that fulfills the Schlumberger Promise and is endorsed by the client through ClientLink* or other customer-focus initiatives.

The highest level of recognition carries a Performed by Schlumberger award, symbolized by a seal of excellence, in the shape of an S. The two arms of the S symbolize the partnership between Schlumberger and its customers.

Performed by Schlumberger unites our company's sense of purpose. A new single logo derived from the seal reinforces this union by replacing the current range of product line and corporate logos.

Schlumberger

The Performed by Schlumberger campaign publicizes the program declaring our pledge to be the leader in everything we do.

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http://www.slb.com/research/sdr50/

Downloadable transcripts of the proceedings will
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Erich Hartmann (1922-1999): photographer, colleague,
teacher, friend. We will miss him.

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The Next 50 Years

Philippe Lacour-Gayet
Chief Scientist, Schlumberger Limited

"It is hard to predict ... in particular the future," said Niels Bohr. The future of research is even more difficult to predict: we expect surprises which often enable us to create what may have seemed impossible earlier. However, the next fifty years of research at Schlumberger will be driven by three certainties.

The world's oil and gas reserves are mostly in depleted reservoirs. To produce these at the right price will require significant breakthroughs in technology. Research in Schlumberger takes this responsibility very seriously.

When the Ridgefield research center opened, the research strategy was to hire the best scientists and put them in a pleasant, isolated environment where they could invent the future. However, to create the knowledge we need, our research effort can no longer be in isolation. The creative forces in the field, in client organizations, in universities and in technology companies have to work together. This is what we call the Schlumberger Knowledge Factory. At its heart is research.

Some things will not change, however. The quality and motivation of our scientists will continue to be the most important factors in our success. Our strategy is to recruit and develop the best scientists around the world. We are confident in their ability to provide the ideas and technology essential for the success of Schlumberger in the next fifty years.

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