

WHAT IS THE HEART OF OUR BUSINESS ?

Recent previous issues of the Hi-Lights have dealt with somewhat spectacular instruments we are either manufacturing or developing. But under every sound building lies a solid foundation. So, while the Heart-Lung Machine or the Oil on Water Detector are exciting concepts and make good copy, let's talk about our solid foundation instruments, the analyzers.

Hallikainen manufactures about 15 analyzers, most used in the petroleum industry, though certainly not limited to it. And when the end-product must be measured for weight, viscosity, color, boiling point or density, etc. in order to assure a continuous high quality or purity, the answer is to be found somewhere among our sturdy analyzers. Among these are the familiar names of Distillation Analyzer, Vapor Pressure Analyzer, Color Analyzer, Freeze Point Analyzer, Gravitrol Density Analyzer, Diacon Analyzer. Designed for continuous on-stream processes, the analyzers have become increasingly necessary to plant operation, outdating manual grab-sample methods in the same dramatic way that the internal combustion engine superseded the horse.

For most companies of any size, the days of bucket and thermometer measurement are gone, when the product was at the mercy of the operator, be he conscientious or lazy. Now the product is measured continuously round the clock, by every conceivable kind of analyzer with built-in recording and warning systems. With the controls preset, if the product begins to reach an area of off-test specification, the recording pens will react immediately, and the sound alarm begins to ring. In our Freeze Point Analyzer, for example, where several samples per hour are taken, if the purity of the product begins to downgrade, an alarm sounds and the operator can immediately switch benzene on or off-stream to regain purity.

In the old days of manual determination, records were kept by the operator -- if he found time to record the information -- if he remembered to record it -- and the big question: did he remember correctly? Now, with the recording pens going steadily

there is a permanent record of performance, efficiency, and trend.

While almost all of our analyzers have been designed originally for use in the petroleum industry, adaptation and refinements have brought answers for other industries appealing for assistance in solving their problems of purity, density, etc. The Gravitrol, for example, is installed in more chemical plants than in refineries, and in overall food and beverage industries totaling a third more than in refineries. The applications possible for any given analyzer are infinite, and new doors of industry are opening each month.

V/L: the newest analyzer

Our newest analyzer is not yet built, though the idea, theory, and pilot studies have all been born and conducted at Mobil Research and Development Corporation. Licensed to Hallikainen Instruments in 1969, the V/L Analyzer prototype has been tested by P.C. Leung for the past several months, and will undergo still further testing. We are designing our own first prototype suitable for hazardous locations in refineries. The new prototype will contain improved design components and electrical circuitry that Leung has developed during his testing on this analyzer.

But what does the V/L Analyzer do and why is it a necessary instrument? In layman's terms, the V/L Analyzer means the ratio of vapor to liquid analyzer.

Now, let's go back a little. Crude oil taken from the ground is processed in oil refineries. The lighter components are first to be separated from the crude, and include those used in the blending of automobile fuels. Some components are highly volatile. These volatile components, in correct proportion, are necessary to starting cold automobile engines, especially in cold weather. You've noticed how hard it is to start your car on a cold morning. Then you have to crank or choke your engine several times to warm the engine and thus build up the correct air-to-vaporized gasoline mixture to start your car.

So, you need a mixture of vaporized gasoline and air to start your cold engine. But what about hot weather and a very hot engine? Have you ever experienced a vapor lock with your car? In this problem some of the gasoline in the fuel line from tank to fuel-pump has become so hot that it vaporizes, and the liquid gasoline cannot get to the fuel pump. Hence, a vapor lock occurs and the car won't start until it has cooled sufficiently.

Still another high volatility problem, this one related again to cold weather, is carburetor icing. The condition develops during warm-up. As the engine begins to heat, gasoline vaporization lowers the temperature of the carburetor air and the surrounding metal parts. When outside temperature is low and gasoline volatility high, the metal parts are cooled rapidly below 32°F. Moisture in the air condenses and deposits on the metal surfaces as ice, and you have a situation similar to that desirable in refrigeration....but not in getting your car started.

So you can see that the oil refineries have many factors to consider in the blending of their gasoline mixtures, many of which are not totally predictable. Mixtures will vary for a warm climate, a cold climate, for sea level, for mountain driving. For years blends have been changed seasonally, blending for a less volatile mix in summer. Did you know that the temperature under the hood of your car will be about 40° hotter than it is outside? Consider that when it's 105° at Sacramento!

Another consideration for refineries, of course, is economics. In separation and refinement there is usually a surplus of butane. Since it costs less than gasoline, the refineries would like to put as much butane as possible into automobile fuel and thereby sell butane at premium prices. But the butane, being lighter, is more volatile and its use must be carefully controlled or there is a high volatility problem in the gasoline.

This, of course, is an extremely simplified discussion, but perhaps it serves to give you some idea of the rationale behind development of the V/L Analyzer. Further, with the growing use of In-Line gasoline blending, it is becoming increasingly critical that gasoline specifications are met, automatically, In-Line.

Ethyl Corporation and Union Oil have developed a type of V/L Analyzer which is now in use at the Union Oil plant in Rodeo. It is, however (in H.I. opinion) cumbersome, and inherently prone to some inaccuracies.

It sells somewhere in the \$20,000 range. Our V/L device is simpler and makes measurement almost exactly the same as ASTM specifies, in approximately six minutes. We expect it to sell for around \$10,000, thus making it highly competitive with the Ethyl/Union instrument.

SALES NEWS

Japanese Show:

K.E. Hallikainen departs soon for Japan, where he will be on hand to explain and discuss our instruments which will be on display there at the Japanese Chemical Processes Show.

Expecting between 200,000 and 300,000 visitors, this exposition will probably be the largest where we have ever shown our products. Invited by Teijin Shoji Kaisha, Ltd., we shall be showing our Diacon Moisture Analyzer, Oil on Water Detector, the Gravitrol, and the Distillation Analyzer.

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In-Line Blender:

The In-Line Blender, now installed in the mobile van, has been displayed through the Bay Area recently, especially in Alameda and to Standard, Union, and Shell companies. Tentative plans are being developed for moving the van through other parts of this territory.

A one-page story on the blender will appear in the September 7 issue of Chemical Engineering magazine.

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Oil-on-Water-Detector Honor:

The Oil on Water Detector has been voted one of the 100 top industrial developments of the year by Industrial Research magazine. As the developer of the instrument, Shell Development personnel will be on hand to receive the award at a banquet in Chicago in September. This award is equivalent to an Oscar in the entertainment field, and as the licensee of the instrument, we are proud to be associated with it. Tom Clark will represent H.I. in Chicago.

The unit will be displayed there in the Museum of Science and Industry.

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Solid State Thermotrol:

The Solid State Thermotrol will be available for sale late this year. It will be shown at the October ISA show in Chicago.

N.S. Waner, F. Szanthy and P.C. have been instrumental in bringing the state phase of the thermotrol into being.

Well, it's all over for another year (so) and we're back on the job, refreshed, revitalized, full of great memories and a big desire to sleep in!

Vacations took us long distances this year. Among the first to go were Tom Clark and Fred Wolff, off on their journeys to Europe. Tom and Britt Marie followed the sun to Paris, Geneva, Florence, Rome, and finally settled down to an idyllic week in Majorca. Who could ask for anything more?

Fred and Hilde flew to Frankfurt, rented a Ford Escort (that's a car, silly) and took off on a whirlwind tour of the continent. Driven by his inner clock to cover as much ground as possible in his allotted time, Fred zipped up the miles across Germany, Belgium, France. Whoa, Fred! Car trouble! A trade, and they were off again, this time in a Ford 17-M. Over the lovely, winding mountains, they went, with the beauties of Switzerland and Italy unfolding. South to Dubrovnik, in Yugoslavia, they drove, then north again to Austria, and back to Frankfurt to return the car and take to the sky visit to Berlin, Fred's old home, not in seventeen years. 1953? The Germany and Europe Fred remembers were recovering, barely out from the rubble of war. Now the highways hum with the traffic of prosperous countries; lights shine from contemporary high-rise apartments; living now is good, and comfortable, throughout western Europe. Impressed by the growth and advancement, Fred refused to spoil his trip by going to the Berlin Wall, preferring to keep his new impressions free of any war reminders. Best of all in the five-week trip? "The mountains, always the mountains."

All signals were "go" this year, so Joyce Parker flew the friendly skies to Hawaii for the rest, the sightseeing, and for the wedding of her daughter. Back less than a month from the fairyland island, Joyce still murmurs "aloha" in response to the hellos and goodbyes of the day.

Antti Fagerroos piled the family in the trusty VW Bus this year and took off for mountains, too. Over the roads they sped, singling out the majestic Grand Tetons and colorful Yellowstone Park for close inspection.

And Arnie Hunn? Well, what would you expect Arnie to do? He helped somebody, of course! Up to the warmth of California's lumber land, the Redding - Red Bluff area (naming) he went, to help his dad build a part. 110° in the shade and going up!

Betty Magovern heard the call of the Great Land, and headed for the new frontier - Alaska. The scenery was magnificent from the inland passage to Anchorage. The Glacier Bay Monument is breathtaking. And Anchorage? Though snuggled down between high, snowy mountains and the long arm of Cook Inlet, Anchorage still seems raw, and waiting for the development which is on its way. The planning has been good. Two freeways are in, residential areas well begun, and wires are underground. A few large good-looking buildings are centrally located in the expanding downtown, but the best architecture is that of the Methodist University and of some of the very expensive private homes. Though Anchorage is "a big city" to Alaskans, it reminds one of Oakland in the days before Jack London Square and Kaiser Center...and much smaller.

Frank Szantho spent a week at north shore at Tahoe, most of it on the King's Beach. (We understand the King wouldn't let him in the Castle.) Frank says he also spent some of his time (censored); and (censored). He also met Mary Sincicic on the golf course, but since they were both chaperoned nothing came of that.

Bob Peacock and family decided to ride our fast-disappearing passenger trains on their summer trek to Canada and Texas. Two wide-apart directions, those! Ontario, Canada, Bob's home, was first goal, and San Antonio, Texas to visit friends, the second. Bob reports almost total lack of consideration for passengers: no berths, no diners! Those good days of padded linens, tinkling silver and smiling porters are lost.

Norma Smith, husband, and children hied themselves to beautiful Idaho for clean air, invigorating hikes, and outdoor camping and living. Norma has some outstanding color prints to show how wonderful it was.

The Sherwood Tribe, likewise, took to camping to restore their souls for the year ahead. They spent their two full weeks in Oregon, most at Bend and Diamond Lake. Once they ventured farther northwest but the fishing scores went down and they scurried back to Diamond Lake where Sam and Ricky had each caught prize 18" trout.

Sparky Nelson and family made a leisurely tour through California, down to the south and into Tijuana. They took in Disneyland on a pre-Hippie day, and finally, slowly, wandered homeward.



Happiness is

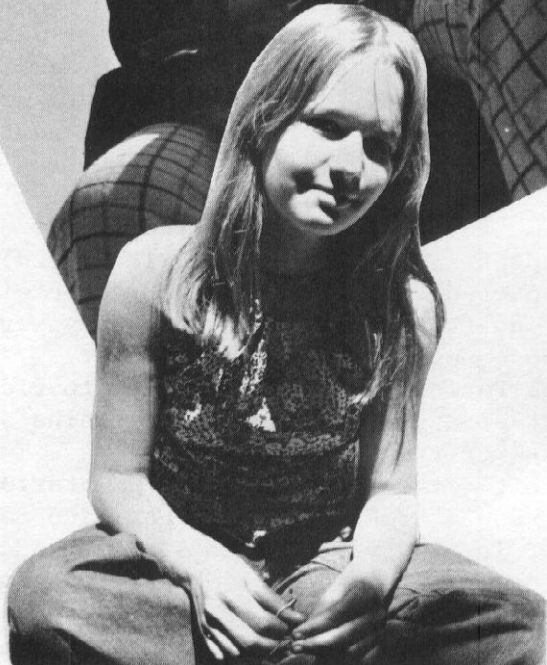
sitting on top of
the world!



Happiness is giving someone the razz...berry!



Happiness is quiet contemplation



Happiness is the after-lunch lull



Happiness is when you're CAPTAIN!

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