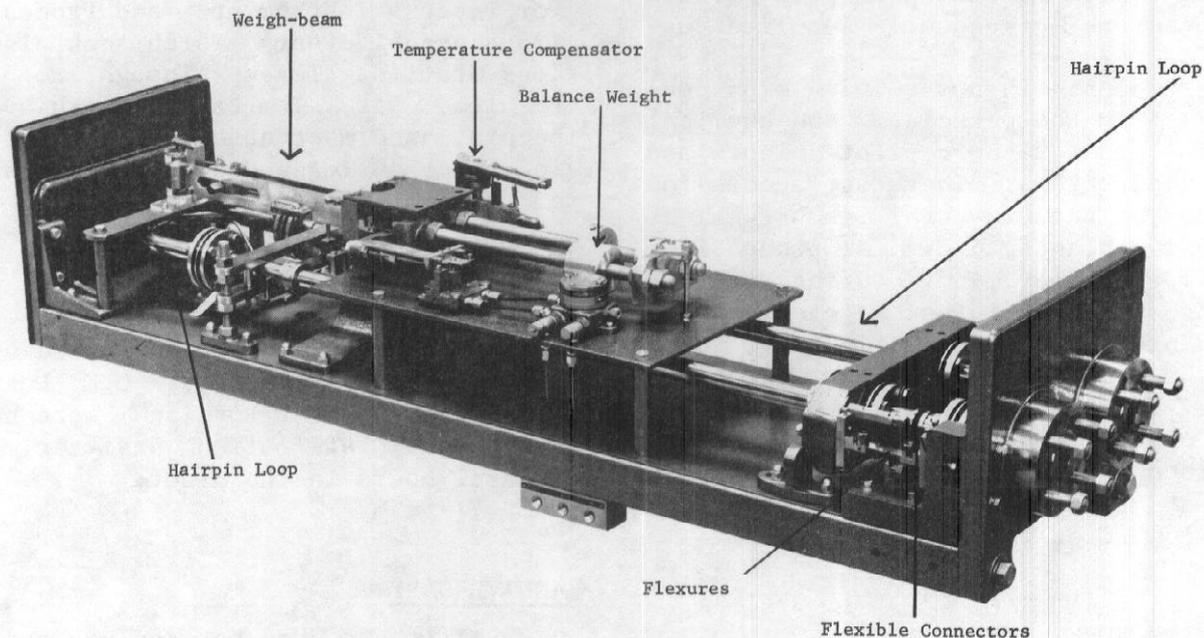


HALLIKAINEN *hi-lights*

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ABOUT THIS GRAVITROL....



MARK IV

One of the best selling, and certainly one of the most flexible analyzers we market is the Gravitol Density Analyzer. Flexible, that is, in the wide spectrum of industry which can make use of the instrument's purpose: to measure the density of any liquid or slurry within very accurate limits and thus aid in achieving a consistent fluid density in the product. This is not a sampling instrument; it continuously measures product fluid density either in-line or through a parallel loop (by-pass). In the case of a slurry, measurement will not be affected by particle size nor by any gradual settling out of the solid phase.

The Gravitol was first developed in England in 1954 for use in the sugar industry and, as a product of the GEC-Elliott Automation Group, has been manufactured by Rotameter Manufacturing Co., Ltd. in Croydon (Surrey) England. Since 1967 the Gravitol has been shipped partially assembled to Hallikainen. These units have then been completely assembled and calibrated in our shop to each customer's requirements. However, beginning in late spring or early summer, the Gravitol will become one of our own manufactured items. Men assigned to this project

are N.S. Waner and Charles Komar. Andy Guild has been closely associated with the instrument in the past.

Operation of the Gravitol is based on the weighing of a fixed volume of liquid in a hairpin loop. The principle of the operation is that the process fluid flows through the hairpin loop, which is pivoted on flexures around a horizontal axis, passing through the flexible connectors. The weight of this assembly (tube and contents) is transferred to a weigh-beam and counterpoised by a balance weight which is adjustable along the beam. A change in density of the fluid produces a change in force on the weigh-beam, and this is measured by a conventional pneumatic force-balance system, consisting of nozzle and flap-per, relay, and feedback bellows. The output signal is directly proportional to the density change.

With industry demanding an increased sensitivity in their measuring instruments, the Gravitol has been improved over the years, incorporating refinements such as temperature compensation and special contact materials. The present instrument, the Mark IV, has a very high performance of accuracy, being $\pm 1\%$ of span. (over)

Stainless steel is the standard material for the tube loop. The flexible connectors are either stainless steel bellows or smooth-bore rubber-type connections, the latter being used when operating on slurries. Alternative materials available are nickel, monel, rubber-lined or ebonite-lined steel, graphite, etc. A model with a glass measuring loop and teflon bellows connectors is frequently supplied customers.

The instrument is now solving many density problems in the petroleum and chemical industries, both for their pilot plants and full-scale operations. There are successful applications of the Gravitrol in breweries, food processing plants, in chemical processing, mining, pulp and paper manufacturing, petroleum refining, sugar refining, water treatment plants, and other industries. In fact, there are over 1,000 varied Gravitrol installations world wide, and the products involved range from fuel oil to rouge, and from emulsion paint to glucose syrup. We have just shipped an instrument to Birds Eye Foods for use in the production of an imitation ice cream.

SHORT TRAINING HERE

Shell Oil Company sent thirteen Specialists from their various refineries to Hallikainen Instruments for a three-day instruction program during mid-January. The men are in training to become Inspectors in the instrument departments of their refineries, and came from Houston, Wilmington, Martinez, Norco ... (Louisiana) and Sarnia (Ontario).

Most of their training has been in Houston (overall training will run between September 1969 through June 1970) but they had three weeks in the East Bay, mainly taking lectures at Shell Development Company in Emeryville.

Here at our company they were instructed in the maintenance and the applications of the Viscometer, Kinetic Vapor Pressure Analyzer, Thermotrol, and the Initial Boiling Point Analyzer, since, as Inspectors, they will be working with the more specialized instruments such as analyzers.

This is not the first time we have been included in a Shell Training Program; in previous years we have had men with us up to six months when the program was more intensive. During this short session, Arthur Alston, N.S. Waner, and Bill Milligan, each spending a day with the men, lectured in the Conference Room and followed up with practical instruction on the Analyzers in our training area behind the Shop.

HE'S A TRAVELIN' MAN....

Tom Clark spent the last two weeks of January driving around Texas with the Mobile Demonstrator, taking it to chemical plants and refineries to show off our process analyzers. In all, he visited nineteen plants. He also attended the Texas A & M Symposium for Process Instruments and Process Control, (25th annual event) which took place at College Station, Texas. Though no sales have resulted yet, Tom talked with hundreds of people, and must have done most of the talking, since no Texas drawl seems to have rubbed off on him.

VISITORS

Three men from Sun Oil paid us a three-day visit mid-February. C.K. Donnell, R.T. Ulbik, and J. West Loveland were here to inspect our Distillation Analyzer, and spent several hours in the plant.

ANNIVERSARY

If it had been between you and the little woman a lot of you would have been in deep trouble in late February! Hm? What? What?

Get your head out of the newspaper, Bertram, you forgot our anniversary!

Anniversary?

Anniversary, that's what five years since the ribbon-cutting and dedication of the new plant: February 26, 1965.

MEETING

A general company meeting was held February 12 in order to answer questions rising from the current economic slowdown. Mr. Hallikainen conducted the meeting, answering all questions he had been presented with prior to the meeting as well as those from the floor. Backlog of work hours per man were shown by graph, indicating an approximate four weeks of work backlog in all four shop departments without any additional sales. Mr. Hallikainen also mentioned several possible jobs upcoming, depending mostly, of course, on whether or not our bids are accepted.

Inquiries about instruments, maintenance, and Systems work are numerous at this time. Shell is quite pleased about a maintenance program we have going with them at their plant in Martinez, and it is definite that the program will continue at least through the fall.

BRAMSON RECEIVING BELATED RECOGNITION

British newspapers in January of this year carried an article foretelling the appearance of a 6,000-word document in the February issue of the Royal Aeronautical Society's Journal (RAS). Written by M.L. Bramson over thirty-four years ago, the document, which will be published for the first time, is termed "remarkable" and Bramson himself is called a "visionary".

This is the story behind development of the jet engine, the invention of a Frank Whittle, now Sir Frank Whittle, and the history-changing boost given him by Bramson, a consulting engineer, then living in London.

To quote from one of the newspapers: "Whittle had spent five years trying to interest British aero-engine firms in his project. By 1935 he was so depressed about the chances of getting his engine developed --- and so short of cash --- that he allowed the basic patent to lapse rather than pay a £5 (about \$25 in those days) renewal fee.

"In the document drawn up by Bramson, the engineer says Whittle's 'theoretical calculations and deductions are substantially correct. Should the discovery be successfully put into practice the points of superiority over existing aeroplanes would be: economical speeds of 500 m.p.h. and over, probably ranges of 5,000 miles and over, the use of non-volatile fuel, freedom from noises and vibration. The proposed development, though necessarily speculative as regards time and money required, is so important that it should, if possible, be undertaken.'

"The judgment, like the invention, was remarkably ahead of its time."

Bramson signed his findings on October 8, 1935, and within three years the first Whittle jet propulsion engine was tested at Rugby, and the first jet-powered aircraft flew in 1941.

A powerful plea for recognition of Bramson's foresight will accompany the evaluation document. It bears the signature of Sir Frank Whittle. It could well bear the signatures of some of the largest aircraft industry presidents in the world.

FINANCIAL EDITORIAL

In order to keep abreast of the financial responsibilities of the company, Mr. Kaufmann has been in constant touch recently with Mr. Nixon and the country's top economic advisors. According to recent correspondence, Mr. Nixon is of the opinion that we have a rich, mighty, and glorious nation suffering from poverty, inflation, illiteracy, riots, high taxes, un-

employment, and pollution all inherited from the recent previous administration.

In his letter of January 2 to Mr. Kaufmann, Nixon expressed his concern over the country's problems, and gave MAK a few hints about his (Nixon's) hertofore secret solutions.

First of all, Mr. Nixon feels that the country needs some single uniting force, and is of the opinion that a return to the bad old days is of utmost importance. "We must curb inflation," he says, "so we shall deflate the economy. We'll stop people from spending. If they don't buy, the companies will have to stop producing or their warehouses will overflow and they'll have huge surpluses which they will have to sell for less money. So, the first step will be a cutback on NASA. The astronauts and their families won't be able to buy new television sets; Philco and G.E. will have to cut back on their employees or they'll have too many television sets stockpiled. Oh, MAK, my plan is going to work just fine for the country!"

Mr. Kaufmann has written to Nixon, pointing out that if people have no jobs to go to and no television sets to watch, they will probably go into the country (particularly on these lovely spring days which will be coming along) and they will picnic, because that's cheaper than eating out, and they will further pollute our already overpolluted streams and rivers.

Mr. Nixon shot off a reply that he would tax polluters on sight.

Mr. Kaufmann answered by Special Delivery that the people might riot.

Mr. Nixon, however, says that he feels more secure about this problem with Judge Carswell on the bench now. In fact, in the most recent communication from the White House, Mr. Kaufmann hears that Mr. Nixon is very pleased with the way things are going. His 'Bring Back The Depression League,' while bitterly opposed by Hugh Hefner, is gaining popularity all over the country, to judge by some of the glum faces one sees nowadays.

Nevertheless, Mr. Kaufmann is drafting another letter to Washington this week, protesting the formation of the League (with a carbon copy to the Bunny Master). MAK will be voicing the opinion for the company that the League is unAmerican, no-fun, and a down-in-the-mouth measure. He is figuring and re-figuring, and latest word from the Accounting Department is that we here at Hallikainen will keep our noses to the grindstone, our shoulders to the wheel, and our ears to the ground while standing at the ready for the next epistle from 1600 Pennsylvania.

IN TRANSIT.....

January and February were months of new ventures for some of our people. We have said goodbye to Jim Valle, Milt Bricker, Andy Andruess, Arthur Alston, and John McAdams, all off to different positions, and goodbye, too, to shipping clerk Frank Simmons, who heads a different drummer these days. He's headed back to school and studies in psychology.

Welcome to Chris Karels, new man in the Accounting Department.

N.S. WANER



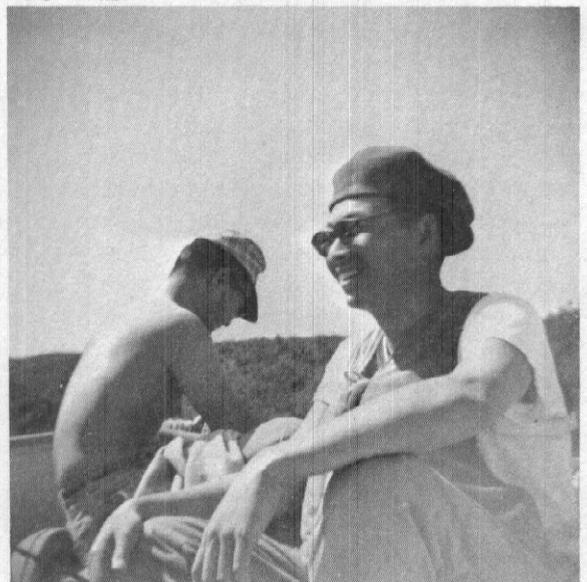
"I don't see why I have to sit out here with the Surface Oil Monitor"

MARY SINDICIC



"I worked through coffee break?"

J. CHIN



"So long, Norm. We'll come back for you tomorrow morning"