

MARCH 58

INSTRUMENT
SOCIETY *of*
AMERICA

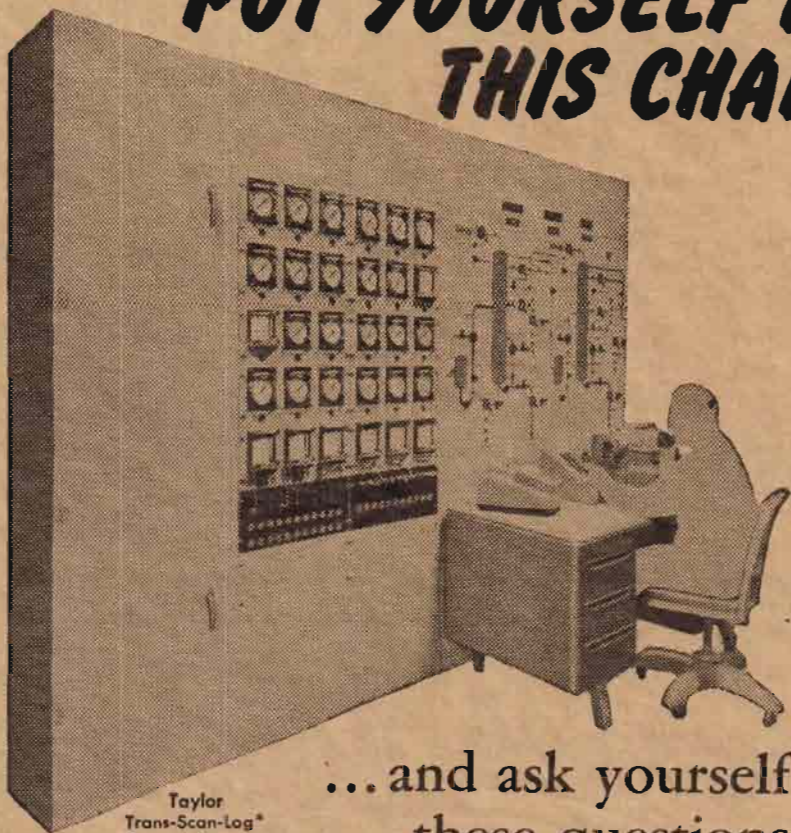


SARNIA SECTION



Monthly Bulletin

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SARNIA SECTION

has as its objective the advancement of the arts and sciences associated with the theory, design and use of measuring and control instruments in the various industries in the Sarnia area.

The immediate benefits derived by the Sarnia members include a monthly meeting at which a qualified speaker discusses an instrument subject after which members fraternize with other instrument men and interchange ideas and news at a social hour, a subscription to the "I.S.A." JOURNAL, a subscription to the Sarnia Section "BULLETIN", access to all technical data, servicing techniques and standardization policies developed by the National Committees of the ISA and an annual school for mechanics and technicians.

As a member of the National body of the Instrument Society of America, a rapidly growing and influential technical society, the member partakes indirectly in the progress of instrumentation made possible by the work of the various National Committees.

Executive Officers for the 1957-58 season are:

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Meetings are held on the fourth Monday of each month from September to May inclusive at 8.00 P.M. The meetings are held at the Vendome Hotel unless otherwise announced.

Anyone earning his livelihood through the manufacture or use of instruments and who is acceptable to the executive body may become a member of the Sarnia Section, I.S.A. Dues are \$12.00 per annum. Associate Members are those who are associated with instruments but who do not earn their livelihood directly from them, such as stationary engineers, process operators, etc. Their dues are \$7.50 per annum.

Copy for "THE BULLETIN" should be sent to the Managing Editor, Mr. H. Hobbs, 122 Cameron Street, Sarnia, Ontario.

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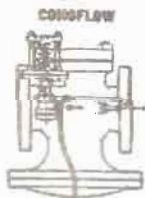
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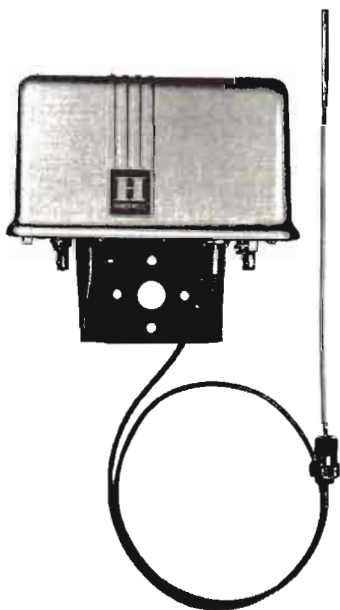
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The "BULLETIN"

VOLUME 7: No. 7

MARCH, 1958

EDITOR'S NOTES

This is indeed a well-filled Bulletin. You will recognize (and doubtless applaud) the efforts of some of our old hired hacks as well as those of newcomers.

You will observe that we are giving the coming election (Sectional, not John VS Lester) lots of publicity. Please note and act upon the instructions in the enclosed form.

It is impossible to over-stress the revival value of a well-contested election. Come on, O reluctant ones, and stand for office.

As our space is limited, I have had to cut down on one of the contributors, namely myself.

* * *

FEBRUARY MEETING

The regular monthly meeting of the Sarnia Section, I.S.A. was held at 8 p.m., February 24, 1958, in the Vendome Hotel, and was attended by more than thirty members and friends.

In the absence of the President, the meeting was conducted by our Vice-President, Mike Hicks. At the close of regular business, Mr. Hicks delivered a strong, well-reasoned appeal for competitive elections within our Section, which means a greater number of members must accept nomination and take office. It was pointed out that the amount of work involved was slight and the rewards very gratifying. We heartily endorse these sentiments and urge all members to let their names stand at the nomination meeting. Make the committee's job a pleasure and not the usual shoo-in of a re-shuffled group of familiar willing-horses.

Our speaker for the evening was Mr. Werner G. Holzbock, Chief Engineer of Askania Regulator Company. The formidable topic was Electro-Hydraulic Valve Actuators.

At the start of the meeting, I must confess that I felt a strong hostility toward hydraulic system in general. This attitude stems from my vivid memory of being batman to some hydraulic systems during a very cold winter, when we had a continuous plague of leaks, pump failures, line breakages, four way valve seizures, shear-pin shearings and freeze-ups. Scarcely a day went by that I didn't collect more oil on myself than something out of a Mazola ad.

Thus, I felt that Mr. Holzbock would have an uphill fight to sell me on his product, and that it would be difficult to even give him unbiased, accurate reporting.

Mr. Holzbock, however, rises to challenges of this sort and should be given the Frigidaire franchise in Upper Greenland, for I came to scoff and went away converted.

In the first place, Mr. Holzbock's manner is most disarming and he radiates a quiet integrity that would make the most skeptical banker stop looking for co-signers. One could not help but have the feeling that if he endorsed equipment it must have the solid permanence of the pyramids and the unflinching performance of the tax collectors.

At one point in his lecture, Mr. Holzbock, discussed that frightening fetish, frequency response. With simple, unarguable logic, he reduced this sometimes inflated subject to its proper proportions, much to the delight of simpletons like myself. I

never really had abandoned the trial-and-error method of setting up controls in any case, and it is a pleasure to find out that someone with a comprehensive knowledge of instrumentation is somewhat in agreement. Please do not feel that Mr. Holzbock deplores or does not practice a scientific approach. He merely has revealed the basic fact that frequencies greater than the measurement and control loops can act upon are only academic and of little real value in assessing the virtues of an instrument.

The lecture was illustrated with many interesting slides, depicting the hydraulic principles employed throughout the industry, and showing many of Askania's actual applications. Their equipment is a far cry from the cluttered messes I recall so vividly. Gone are the maze of piping and hoses and many of the units are as uncluttered and attractive as a bubble-dancer's torso.

My friend, Fred Croft, assured me (*sotto voce*) that this equipment could endure considerable exposure to fire and still perform perfectly. This alone provides a noteworthy selling point.

Mr. Holzbock had with him, certain equipment to demonstrate how Askania has achieved their accurate moving-nozzle effect. A most convincing lecture indeed, and I am sure that all of us felt that here was a line of instrumentation that approached the rugged and trouble-free ideal.

Our thanks to Mr. Holzbock and Askania.

—H. Hobbs.

★ ★ ★

TRAINING INSTRUMENT MEN

(An Answer to Bill Kirk)

In the February issue of the "Bulletin", Bill Kirk was kind enough to comment on my article, Training of Instrument Men, which appeared in the January Bulletin.

I should like to clarify certain issues which have arisen, which, I think, were caused partly by a misinterpretation of some of my statements and partly by a lack of emphasis on my part of certain points.

First off, I cannot withdraw any statements I made about putting men on shift work after two months training. This is a fact and facts cannot be altered, even if they don't please. It is also a fact that these men "carry the plant" without help except on the rarest occasions, which average six times per year per man. Even this help averages only three times a year per man as actual physical help. (On the other occasions, advice is given over the telephone). We have found also, that 90% of the requests for help are on electronic instruments for which the man had only two hours training. (The very cursory training on electrical instruments is because this work is done by electricians on days, and there are no electricians on shift).

For all intents and purposes, therefore, it is a fact that we can train these men sufficiently in two months to enable them to "carry the plant" by themselves on the back shifts, week-ends, and holidays, allowing 104 days for week-ends plus ten statutory holidays plus 2 shifts per day remaining. This works out that for 844, 8 hour shifts out of a possible 1095 shifts per year, these men are on their own! Percentage wise, this means that for 77% of the time, they are on their own responsibility. Now, as to whether Sun Oil could accept this: We have the least down time of any refinery or chemical plant in the area and at no time even has a shutdown been caused by Instrument Men. So, it is a fact that it works and works well.

Now, to clarify some misinterpretations. I did not say in my article that we made "Instrument Men" in two months. (I agree with Bill that it takes from five to ten years to turn out a first class Instrument Mechanic). All I said was, that we could train men sufficiently in two months to enable them to carry a shift. I was also very

careful to itemize the things they could do after two months training. While this is not sufficient to constitute a first class Instrument Man, I still think it is a formidable accomplishment and that is the reason I wrote the article to try to explain why man can be trained even this much in so short a time.

I should like to emphasize another point I made. The men we train are "Journeymen Pipefitters" which means they are already skilled mechanics in a line closely allied to instrument installation. Each has had a minimum of five years in his previous trade (most have 10 years) and are mechanically minded. Also, because of our contract system, we can pick and choose until we get the best men to start with.

So, Bill I hope you will understand that I am not trying to run down Instrument Men or their training. Who would know that or fight for it better than I?

Larry Hall.

* * *

A MODERN PARABLE

By Mike Hicks

A long time ago there lived in a certain city a number of souls who were interested in drinking beer. These men had drunk beer as individuals for some time and although they did not profess to be connoisseurs they did know good beer from bad or so they thought.

After a while it occurred to a small group of them that possibly they might enjoy their beer more if they drank it together. They would be able then to discuss the various brews, to compare them for colour, taste and body and whether one way of drinking them was better than another. Last, but by no means least, they could enjoy each others company whilst drinking and so combine business with pleasure.

As a result of this they decided to form a society and meet on certain fixed dates in the month. This they duly did and the society was christened "The Frothblower's Association." The society waxed and prospered, the meetings were held regularly and the executive functioned smoothly.

After a time the executive began to hear of other societies of a similar nature in other parts of the land and it seemed to them a natural thing to do to combine these "Frothblower's Associations" together. Loosely of course, a man from one city could not be expected to drink the beer of another man's city or to understand another man's problems, but at least they might learn new drinking techniques which would make elbow bending a little easier.

Then a sad thing happened. The brewers heard about this large body of men whose lives were seemingly devoted to drinking beer and it was too good a chance to miss. Here were golden opportunities waiting to be grasped by any brewer willing to go and grasp them. This is not to say that brewers are grasping men, but then business is business. The guileless "Frothblower's" were besieged on all sides by the brewers. So much so that certain groups of them even passed by-laws to prevent the brewers from taking over the local chapter. The newly formed national body could not however do this and in due course the head office became top heavy with brewers of one sort or another. The local "Frothblower" was not upset however. The brewers were willing to work for nothing and at least he got free samples once in a while.

The brewers were however only human and being somewhat ambitious it seemed to them for their lofty positions that the individual "Frothblower" in his squalor was only interested in drinking the stuff. "Why not give them some education", they cried "Let them know all about brewing the stuff and bottling it and even how to sell it. Let them know what their miserable bodies do with it and why

it is sometimes good and sometimes bad". Culture and education became their battle cry.

Anybody who did not or could not assimilate all this vast knowledge was obviously not a fit person to associate with. He was a necessary evil for a while because the Society required his money but this would not be for long. Soon the "Frothblowers" would be "professionals" and then people would come running to them, begging to be let in.

The fact that there were already numerous, old, long established professional bodies in existence which were already set up to study just those areas that the brewers fancied themselves in mattered not a jot. The majority of the brewers would have been only small wheels in these august bodies and if they were going to be wheels at all they were going to be big wheels.

It was necessary first however to get plenty of members into the fold, their money was useful and they could always be weeded out afterwards. No matter that they knew little and cared less about beer drinking. "Sign them up" became the battle cry and to this end the brewers ran competitions like a church bazaar, except that the prizes were gold plated bottle openers, to see who could sign up the most members. With all these members the national organization became top heavy and nearly foundered under the mass of work that they involved. After all the brewer's first loyalties were to their respective companies and they could only do so much extra work. Fresh help was therefore hired, high priced help too for after all it was going to be a "professional" society.

It was necessary from time to time for the big wheels to convene and again being only human they always arranged these get-togethers in places such as Hawaii or Jamaica rather than Taylor Flats where the national headquarters were located. Of course all the high priced help had to travel down to Jamaica to assist at the shindig. Fortunately the expenses did not matter any more, the society now had so many members that it did not notice the additional cost. In fact nobody noticed except the original "Frothblower", who found that his dues were going up and his service, which had been non-existent to start with, remained the same. He did however have the nebulous advantage of knowing that he belonged to an organization whose big wheels could say that they had appeared before a committee of the W.C.T.U. enquiring into evils of beer drinking.

Gradually the original "Frothblowers" left or were weeded out. They merely wanted to be left alone to drink their beer in peace. They did not care how or why their bodies used it. They did however still know good beer from bad and what was even more important when and when not to drink it. Finally as the old experienced elbow-benders became fewer and fewer the brewers, or wheels as they were now known, decided they were not necessary anyway. The society was pronounced to be "Professional" only. This was very nice for the wheels but tough on the few old original elbow-benders remaining who not unnaturally decided to leave now that they were no longer wanted. One final obstacle remained to be overcome. Other professional societies just refused to recognize the upstart "Frothblowers" and nothing they could say or do could remedy this. Even talking to more committees of the W.C.T.U. and setting up "search parties" had no effect.

So the old members left because they were not wanted, and the new members left because there was nothing in it for them, and finally all that was left standing was a magnificent organization with big wheels and high priced help but no skeleton to support it. One fine day a wind blew and it fell apart and nobody nowadays has ever heard of the "Frothblowers".

Or have they?

PROGRAM CHAIRMAN'S NOTES ON MARCH MEETING

For our March meeting, we are planning to digress into the field of instrument panels. The design of instrument panels is constantly changing; what is considered good to-day is impractical to-morrow.

To bring us up-to-date, we have prevailed upon our good friend Tom Hislop, who presently heads the Canadian division of Panellit Incorporated, to speak at our March meeting. He will discuss present day trends in the design of instrument panels. He has promised to show us lots of pictures, which will be provided by his parent organization.

Instrument panels are the decorative side of instrumentation; and to those of us who have a strong sense of the aesthetic, this topic will be of real interest. Un-aesthetic members are invited to attend, nonetheless.

Question—Are you confused by Automation? If so, come to the March meeting and leave your confusion behind. We have a film entitled — “This is Automation”. Thirty minutes of sound and colour, guaranteed to get your feet on your shoulders, and your head on the ground.

* * *

WRITTEN ON A ROLL CHART

Hey Waiter!

Heark unto me ye worn an weary crew,
 And, for the moment, rest upon your oars,
 Our endless journey we'll resume ere long.
 For now, the years behind us give me cause
 To show my satisfaction lavishly.
 We are survivors, lean and numbering few,
 Of what was once a plenteous, portly band,
 Our struggles raised production's banner high,
 Our mark upon the flinty business world,
 Remains the envy of all lesser men.
 We kept, on waste, a never-winking eye,
 And as we fought, did shout "FRUGALITY".
 No need that I recount this saga here,
 It lives a part and parcel of us all.
 So let us fill our beakers to the brim,
 To tragedies that now in retrospect,
 Seem like some half-forgotten comic dream.
 For just this moment bid the dyke to leak,
 Bring on the blood-red wine, the dancing girls,
 And let us drown the toilsome dreary past
 With music, froth and noisy gayety.
 What matters that to-morrow's dawn will see
 We smite familiar billows patiently.

—H. Hobbs.

MEETING NOTICE

- TOPIC:** Present Day Trends in Instrument Panel Design
- SPEAKER:** MR. TOM HISLOP
Canadian Representative, Panellit Incorporated.
- DATE:** MARCH 24, 1958
- TIME:** 8.00 P.M.
- PLACE:** VENDOME HOTEL
- FILM:** THIS IS AUTOMATION
General Electric Company sound colour production.

INSTRUMENTS ARE MY LINE

By E. W. Kirk

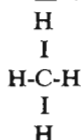
The question has often been asked as to how the knowledge of chemistry helps an Instrument Mechanic. I think, to thoroughly understand what instruments are doing, the Instrument Mechanic should know something about process, and to understand this, he has to have some chemical knowledge.

For instance, any flow meter is measuring substances of some sort, and all substances are in one of three states, eg., solid, liquid or gas. To go further, everything is made up of molecules. These molecules are always in motion, the difference being they are less active in a solid than they are in a liquid gas. Every substance can be changed from a solid to a liquid to a gas by the combination of heat and pressure. Some substances at normal temperature and pressure are solids, others may be liquid or gas. For example, iron at n.t.p. (normal temperature pressure) is a solid, but

if enough heat is applied it will turn to a liquid. If further heat is applied it turns to a gas. On the other hand water at n.t.p. is a liquid. If heat is removed it turns to a solid, (ice). There are many meters which will measure substances in one or all three of these states.

For most Instrument Men in the oil or chemical processes, they will be dealing mainly with substances called hydrocarbons. These are made up of carbon and hydrogen molecules. The carbon molecule has four valence bonds to which the hydrogen attaches, eg. C=Carbon H=Hydrogen

—= Valence bond



From this, in order to have a stable material each carbon must have four hydrogens attached. There are several types of hydrocarbons, which are identified by symbols. These symbols indicate the cut to which it belongs, the amount of unsaturation, if any, and if the compound is normal or iso. For example "C4" means a member of the C4 cut. An I placed in front IC4 indicates that it is an iso compound, whereas "N" before NC4 means that it is a normal compound. A dash following the symbol indicates the compound is an olefin, 2 dashes, that it is a di-olefin. Thus the symbol "IC4-" can only represent isobutylene. The difference in normal hydrocarbons and an iso olefin is the boiling point. The following illustrates some of the hydrocarbons family.

Paraffins:				Boiling Point
Butane	NC4	$\begin{array}{c} \\ -\text{c}-\text{c}-\text{c}-\text{c}- \end{array}$	C4H10	31.1
Iso-Butane	IC4	$\begin{array}{c} \\ -\text{c} \text{ c} \text{ c}- \\ \\ \text{c} \end{array}$	C4H10	10
Olefins:				
Butylene	C4-	$\begin{array}{c} \\ -\text{c}=\text{c}-\text{c}-\text{c}- \\ \end{array}$	C4H8	20 to 35
iso-Butylene	IC4-	$\begin{array}{c} \\ -\text{c}=\text{c}-\text{c}- \\ \\ \text{c} \end{array}$	C4H8	19.4
Di-Olefins:				
Butadiene	C4=	$\begin{array}{c} \\ -\text{c}=\text{c}-\text{c}=\text{c}- \\ \end{array}$	C4H6	23.5

Someone is likely to say, so what? This bunk doesn't affect me, a mechanic!

For example, suppose a flow meter, which is giving incorrect readings cannot be traced to the usual problem of metering. This error could be due to the mixture of compounds in the stream to be measured. If the mixture contained two compounds

with different flash points (due to its chemical make up) part of it would flush from a liquid to a gas as it crossed the orifice, due to the orifice pressure drop. This flashing can be eliminated much easier if the mechanic understands what is happening at the orifice than if he doesn't.

I feel this is a good place to stop, because I don't know how you readers are doing, but this writer is starting to get confused.

* * *

IMPORTANT ANNOUNCEMENT

TO: All members of the I.S.A., Sarnia Section

Dear Member:

Because there is possibly some doubt in your mind as to the duties of the executive, we have attempted to provide some clarification in this respect. Bear in mind when you read the following descriptions, that these are not official but merely a general interpretation of executive duties as they have been performed in the past.

- | | |
|-----------------------|---|
| TREASURER | Keeps books up to date, pays bills, accepts fees from members and forwards them to the National Office (the fees that is)—in general keeps track of the money. |
| SECRETARY | Handles correspondence, receives letters, writes replies, writes "thank-you" letters to guest speakers. Submits answers to questionnaires. Keeps minutes of executive meetings, keeps correspondence files. Sends out notices other than those which can be published in the Bulletin. Handles business referring to I.S.A. as a whole. |
| VICE-PRESIDENT | Acts in the capacity of president in the absence of that official. Assists president in presidential duties.. |
| PRESIDENT | Presides over executive and general meetings. Represents section at national conferences and meetings providing employer will supply necessary funds and the time off from work. Generally responsible for guidance and promotion of section activities. |

Executive officers are required to attend one executive meeting per month which is held one hour prior to the general meeting.

Membership and programme chairmen are appointed rather than elected.

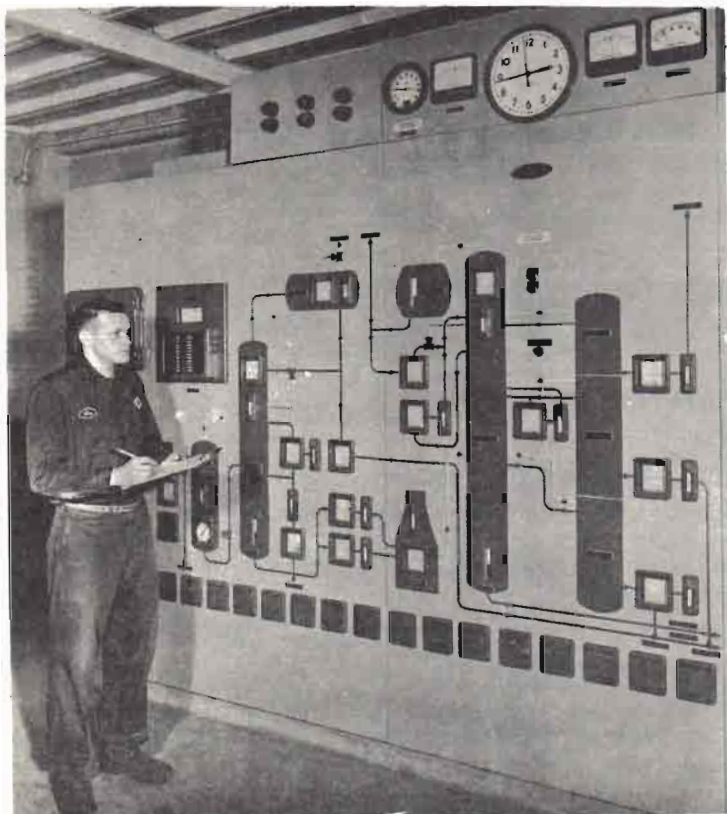
Remember, nominate as you please, but please **NOMINATE**—anyone whom you consider would do a good job for the section. Don't forget to return the attached form to us—by hook or by crook—by the March 24th meeting.

Nominating Committee.

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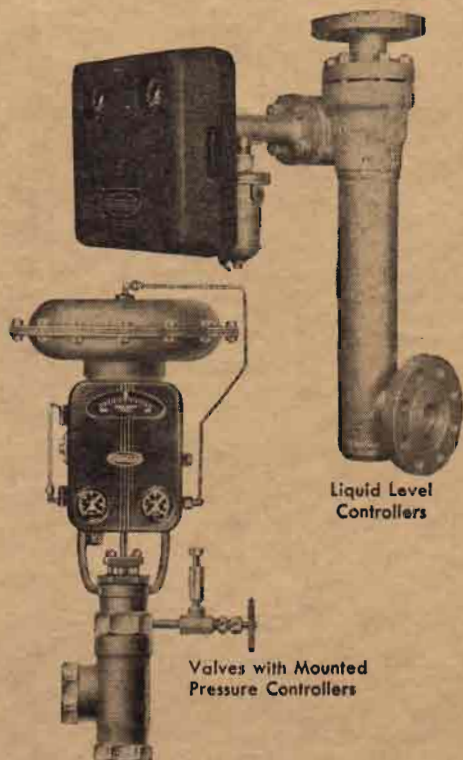
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