

## Questions and Answers on Railroad Problems

*Frisco folks are responding to the opportunity presented by this column of the Frisco Magazine, for securing expert and authentic advice on problems which might otherwise remain unsolved.*

*From Paris, Texas, Wichita, Kansas and points in Oklahoma, questions concerning certain phases of railroad work have been received, and at the present time they are in the hands of the proper officers. The answers to these questions will appear in the Frisco Magazine for October.*

*This month we are answering another group of questions from the freight loss and damage department, the mechanical department, and the freight accounting department. Remember, questions concerning procedure in the passenger, operating, treasury, freight and any other Frisco departments will be answered gladly.*

*Send in your questions to the Editor, Frisco Magazine, St. Louis. Your names will not be revealed and you will find your answers in this column.*

—W. L. H., Jr.

### LOSS AND DAMAGE CLAIMS

*(Answers by J. L. McCormack)*

Q. On whose authority should an agent return or divert a refused shipment?

A. "Order" shipments refused or unclaimed MUST NOT be returned to the shipper except upon surrender of the bill of lading and written order of the shipper, or upon authority of Superintendent Freight Loss and Damage Claims.

Agents must not accept reconsigning orders from the person, firm or corporation shown in bill of lading as to be "advised" or "notified," except upon surrender of properly executed delivery order from the original consignor.

Refused shipments billed open may be reconsigned on instructions of shipper when accompanied by original bill of lading or on instructions from Superintendent Freight Loss and Damage Claims, Superintendent of Transportation, Division Freight Agents and Freight Traffic Department representatives. Instructions of shippers to bill of lading line on open shipments, transmitted direct to agents holding freight, when accompanied by original bill of lading may be accepted as authority for returning or diverting a refused open shipment.

Q. Should an agent give damage notation on concealed loss or damage on receipted freight bills?

A. Agents should make notation of concealed loss or damage on receipted freight bills only when demanded by consignee and then he should be particular to show that loss or damage is concealed and not discovered until after shipment delivered and unpacked.

Q. What is an "Over" Report?

A. An "Over" Report is a report issued by an agent showing the receipt of an article without billing of any kind to cover—this may be either dead over from warehouse or car without any billing or an over in excess of billing.

Q. What is a "Short" Report?

A. A "Short" Report is a report is-

sued by a junction or destination agent showing the failure to receive all or part of shipment for which he held revenue waybill.

### MECHANICAL DEPARTMENT

*(Answers by F. G. Lister)*

Q. On which end of the car is the brake staff?

A. On the "B" end.

Q. How do you determine the A and B end of a box car?

A. The end of the car toward which the cylinder push rod travels is known as the B end of the car, and the opposite end is known as the A end.

Q. How do you determine the right and left side of a box car?

A. Facing the B end of the car the side of the car on your left is known as the left side, and the side of the car on your right is known as the right side.

Q. What is a knuckle pin?

A. The pivot pin holding the knuckle in the jaws of the coupler or draw bar.

### FREIGHT ACCOUNTING DEPT.

*(Answers by W. E. Bernthal)*

Q. What is the difference in a straight bill of lading, shipper's order bill of lading and a live stock bill of lading?

A. (a) Straight bill of lading is simply a receipt for the freight, and if charges are paid at the time shipment is made and bill of lading executed, receipt for prepaid freight charges is given thereon. (It is non-negotiable).

(b) Shipper's order bill of lading is a negotiable bill of lading, issued by a carrier to cover freight for transportation, on which the shipper desires to make collection for the whole, or part value of the consignment before its delivery. A shipment of freight for which an order or negotiable bill of lading has been issued to secure control of the shipment to the shipper or person to whom shippers has endorsed same, and on which the shipper collects from the con-

### THOS. F. BURNS HONORED

Veteran and Wife Presented With  
Gold Badge and Pin

COMPLIMENTARY to Thomas F. Burns who has been a member of the Brotherhood of Locomotive Engineers for forty years, division No. 58, invited its auxiliary, G. I. A. Division 84, and guests, to a picnic at Doling Park, Springfield, Mo., July 22.

N. V. Allebach, Frisco engineer of Springfield, Mo., acted as toastmaster, and presented Mr. Burns with the gold badge, which the grand division provides as a special honor for those whose membership extends over that period of years.

Mrs. G. A. Hasler, in behalf of G. I. A. Division 84, then presented Mrs. Burns with a gold membership pin in appreciation of her faithful service as an active, as well as a charter member of this division.

W. H. Morrill of St. Louis, congratulated John W. Bowler on his recent election as general chairman of this organization on the Frisco, and voiced the sentiment of all present in his testimony as to the worth and qualifications of Mr. Bowler.

C. C. Mills of Oklahoma City, Logan Thompson, J. G. Taylor, as well as two 40-year badge men, G. C. Graves and Thomas Lyons of Springfield, and W. R. Boyd, made short talks.

About 150 were present and participated in a basket dinner served late in the evening.

### K. C. MO., EMPLOYEES MEET

The Association of Metal Craft and Car Department Employes of Kansas City held a fine meeting at their hall, Twenty-third and Summit Streets, the night of August 17. A large crowd attended and the meeting was an interesting one. G. W. Moore, assistant superintendent of motive power, addressed the gathering. After an interesting business session, refreshments were served.

signee, through a bank or otherwise, all or part of the value of the shipment is not delivered by the destination agent unless the original bill of lading, properly endorsed, is surrendered, except on authority from the properly authorized officials as prescribed in instructions to station freight and ticket agents, paragraphs 14 to 63. Such bills of lading are usually sent to the consignee through a bank, attached to a draft which the consignee is obliged to pay, before possession of the lading can be obtained.

(c) A live stock bill of lading is printed blank which becomes a contract between the shipper and carrier for transportation of live stock when properly executed by the shipper and an authorized agent of the carrier.

**R. B. PENNYCOOK HONORED**

**Frisco Employee Named Editor of Concordia Turner**

**R**OBERT B. PENNYCOOK, clerk in the office of the auditor of freight accounts at St. Louis, has been awarded two honors unusual in their scope.

Pennycook was notified recently that he had won first prize in the mental culture essay contest in con-



R. B. PENNYCOOK

nection with the thirty-third national festival of the American Turnerbund at Louisville, Ky., in June. He has also been appointed editor in chief of the Concordia Turner, an athletic publication. The Concordia Turner is published for and circulated among the 100,000 members of the Concordia Turnverein. More than 280 chapters of the organization are active in the United States. Pennycook is a New Zealander, and has been in the employ of the Frisco since 1922. He is an occasional contributor to the Frisco Magazine.

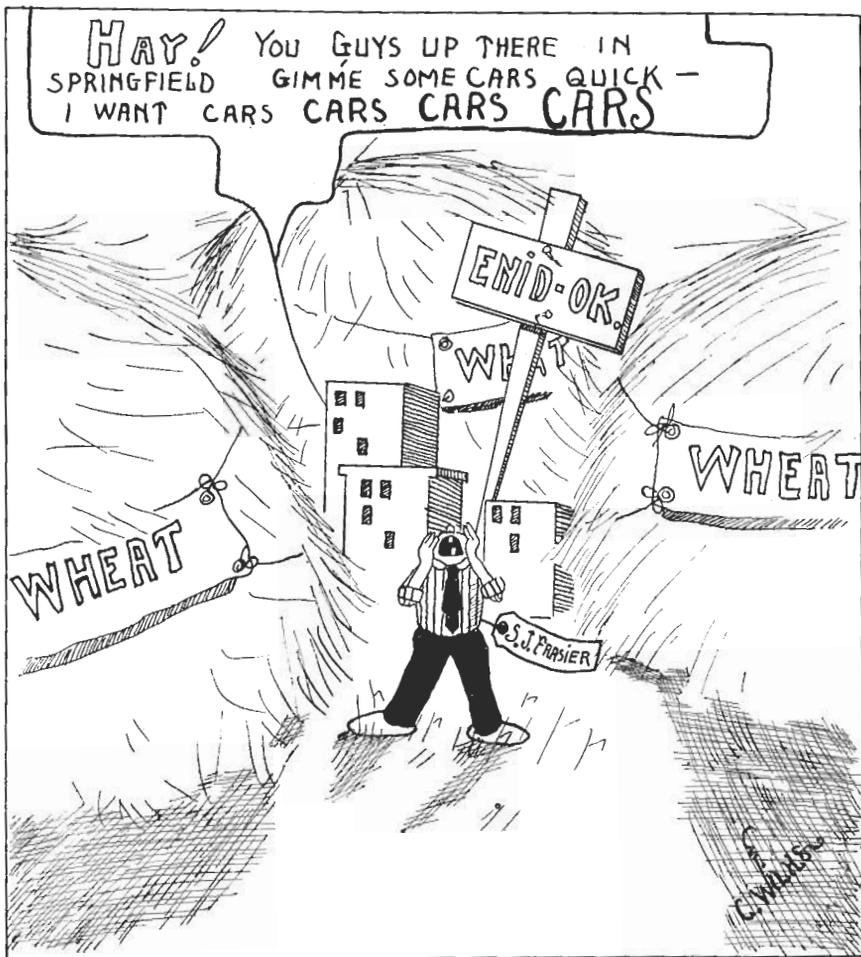
**W. L. Heath Made General Service Agent August 1**

**Widely Known Conductor Will Travel System in Interests of Better Service**

W. L. Heath, a conductor on the Frisco for more than twenty-six years, has given up his position in that capacity for an appointment as general service agent. The appointment was made by J. E. Hutchison, vice-president in charge of operation and was effective August first.

Mr. Heath will travel over the entire system, making suggestions and recommendations to better Frisco service, and correcting conditions which might prove detrimental. He came to the Frisco in 1899, after some twenty odd years on the Burlington. His entire service as conductor has been on the Frisco's eastern division.

**He Wanted Good Cars and Wanted 'em Bad**



Superintendent S. J. Frazier of the Western Division, better known to Frisco employes as "Little Jeff", is a decidedly emphatic and energetic gentleman. So, when wheat began to pile up around the environs of Enid, where "Little Jeff" holds sway, and there were not enough box cars to handle the huge crop, Frazier began to urge Springfield to take care of him. On June 26 the situation had been only slightly relieved, and Frazier piled one "S.O.S." after another into the office of that diffident gentleman, Mr. J. H. Doggrell, superintendent of transportation. He got results. On June 27 he got 300 box cars, even though it was a Sunday, and before the week was over 2,000 empties had rolled onto the Western Division

and Frazier was again "sittin' pretty." But the genial members of Mr. Doggrell's office force hadn't forgotten his rantings and ravings, and headed by F. L. DeGroat, general car service agent, they "sicked" C. Wilks, caricaturist and cartoonist on Frazier's efforts. The above cartoon is Wilks' work. Incidentally, 3,802 cars of wheat moved off the Western Division this season (figures of August 12th), compared to 1,513 cars the same period last year. As yet only about 55 per cent of the crop has been handled. Superintendent Frazier expects to move 10,000 cars of wheat by next June at the rate of 80 or 90 a day. As many as 173 cars of wheat were loaded on the Western Division in one day, he reports.

In 1918 he was honored with the appointment as chairman of the general committee of adjustments of the Order of Railway Conductors, in which capacity he served until 1923.

It is his plan, at this time, to attend accident prevention and fuel meetings and thereby acquaint himself with the Frisco employes in their various occupations.

**AGENT MILLAR MARRIED**

W. W. Millar, local Frisco agent at Kennett, Mo., and Miss Eva Hodges of Memphis, Tenn., were married at Marion, Ark., on July 26. The groom has been a resident of Kennett for many years and is very popular and well liked. They will make their home in Kennett.

## Thirty Thousand Persons Attend Ozark Grape Festival, August 18



**A** RECORD breaking crowd of 30,000 people attended the second annual Ozark Grape Festival at Springdale, Arkansas, August 18, and witnessed the beautiful pageant and coronation ceremonies in which Miss Lavinia Morsani of Tontitown, Ark., was crowned Queen of the Festival, and the history of the grape industry portrayed from its beginning.

The event was a gala one in the grape regions, and visitors to the celebration began arriving forty-eight hours in advance from all sections of the territory. The greatest crowd in the grape region's history was as-

sembled within Springdale's city limits at the start of the all-day festivities the morning of May 18. Bands from Joplin, Bentonville, Altus and Van Buren made the morning merry with tuneful melodies and the Ozark Smile Girl's Drum Corps from Ft. Smith delighted the visitors.

At 2 o'clock in the afternoon Governor Tom J. Terrall crowned Miss Morsani before a cheering multitude, and the pageant depicting the history of the grapes was staged. Egypt, Greece, Italy, France, Spain and America were all represented in the history of the fruit. Many baskets of

grapes left on Frisco night trains. A Mardi Gras carnival was held from 8 till 12 at night.

Among the Frisco people who attended the event were: Vice-President J. E. Hutchison and general manager Shaffer; J. N. Cornatzar, passenger traffic manager; J. L. McCormack, superintendent of freight loss and damage claims; M. M. Sisson, assistant general manager; C. H. Baltzell and S. R. Kennedy, superintendents; W. L. English, supervisor of agriculture; D. E. Eicher, horticultural agent; J. G. Weaver, division freight agent and others.

### PRESIDENT WHELAN'S MESSAGE

To the Veterans, Veterans' Wives, Veterans' Widows; Greetings:

On a perfect day in June, 'neath blue skies and a smiling sun, birds singing and flowers blooming, the veterans held their fourth reunion at Springfield. The good women present, wishing to be a part of this association, decided at a meeting held which had been called by the president of the association, Mr. Van Horn, to form an auxiliary. The response to the call was splendid, more than one hundred women signing the charter roll.

Our purpose is to bring the veteran employes and their families of every branch of the service into closer social relationship. Our interests are one. We have a common cause, the further we help to advance the welfare of this railway system the greater will be our own benefit. To do

this each of us must accept our responsibility in the matter and put forth every effort to succeed.

While the response to the call to the veterans' wives at the reunion was good, it was only the beginning, the laying of the foundation as it were, to make our structure all that we would have it be. We must have the co-operation of all of our veterans' wives; the united effort of all of our women in this work. We want every name on the charter list, so when the next reunion is held the auxiliary will be equally as well balanced as the association to which it owes its being.

We have no cumbersome laws, rules or regulations to govern us. To be sure we must have some system, but our aim is to make this as simple and democratic as is permissible to hold the organization together. We are planning at the present time to hold meetings on every division of the system during the coming months. At these meetings a short business session will be held—a chairman chosen who will plan future meetings

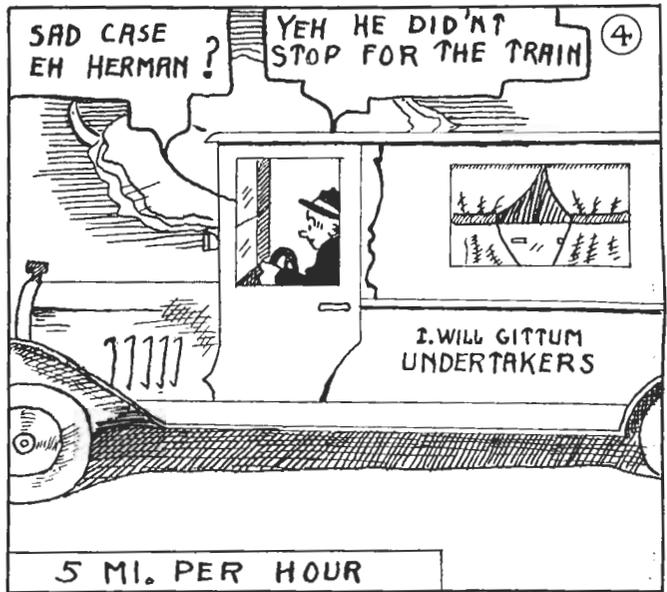
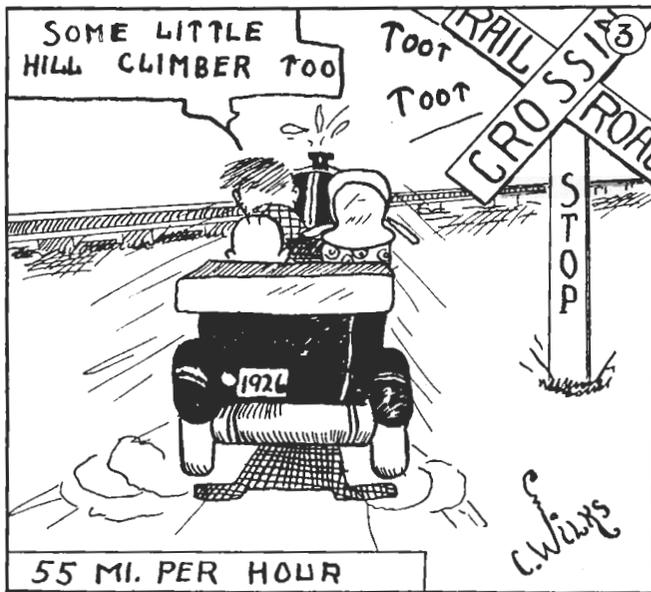
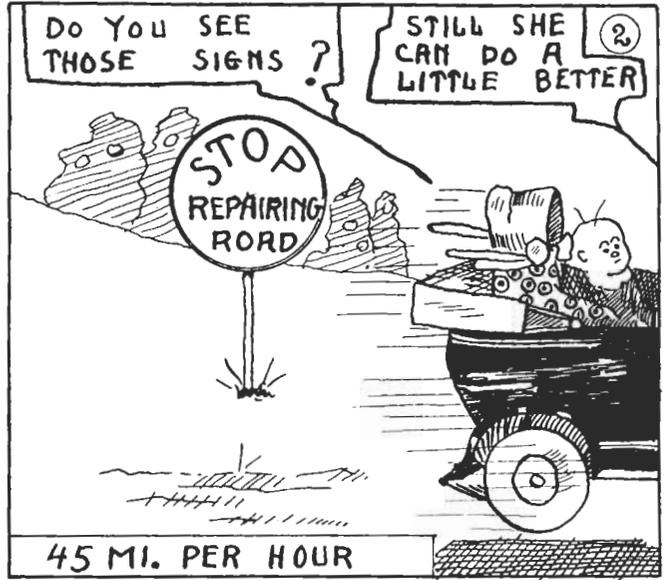
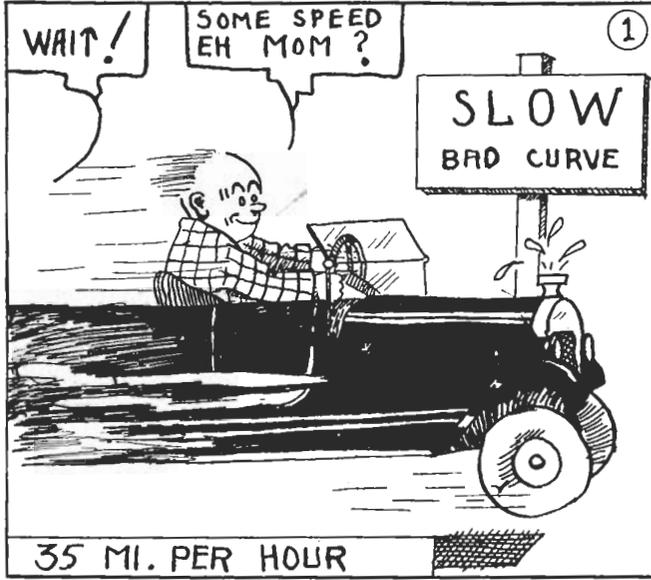
and entertainments at different points on the division, and who will at all times be in close touch with the members in her immediate territory.

Following the business hour at this first meeting on the different divisions, the time will be devoted to a program selected from the talent among the members' families, to getting acquainted with each other, forming new friendships, renewing old friendships then if possible a luncheon or banquet will be held, for when friends break bread together, naught but good will can prevail.

There is such an opportunity for service, there is so much for us to do, there are so many ways in which the womanhood of our system can make its presence felt for mutual helpfulness, happiness, and prosperity that we must slumber not in the tents of our fathers but must be up and away where duty calls. To this end may we have your assistance in this pleasant as well as earnest work?

Very sincerely yours,  
MRS. ROBERT WHELAN.

# He Didn't Believe in Signs



**T**HE toll of highway crossing fatalities is marching on.

Despite genuine, almost frantic efforts on the part of the railroads to preach the gospel of "Accident Prevention," "Safety First," and "Watch Railway Crossings," the reckless drivers continue to dominate the countryside with their racing automobiles—until a grief-stricken engineer and his crew stand helpless beside a mass of wreckage, grieving, yet knowing it was not their fault.

"We can't help it," an engineer said recently following a crossing accident. "There is no way in the world we can hit an automobile if the driver is watching his business. He can steer his machine. We run on rails and cannot. He can stop quickly. We can halt the thousands of tons of steel behind us, too, but not as quickly. He knows we can't turn

aside, and he knows he can. Yet here is another victim. What can we do?"

Figures recently compiled by the Interstate Commerce Commission show that for the first three months of 1926, 517 persons were killed at grade crossings, and 1,582 injured.

On Frisco Lines for the same period 16 persons were killed at grade crossings and 26 injured.

In 1924, 23 lives were lost in Frisco grade crossing accidents. In 1925, 43 persons were killed at Frisco grade crossings. And in the first six months of 1926, 23 autoists were killed at grade crossings, as compared with 9 the first six months of 1925. This is an increase of 155.5 per cent.

There is yet another increase in injured autoists. For the first six months of 1926, 142 autoists were injured at grade crossing accidents, while in 1925 only 105 were injured,

an increase of 37, or 25.2 per cent.

What is there to do?

Accident prevention agents of Frisco Lines are speaking to thousands of persons each month—school children in the school rooms, adults in meetings of many kinds. And meanwhile a vigorous campaign is being waged in many other forms and mediums. Newspaper advertising, motion pictures, the printed word in circulars and magazines.

And yet the reckless motorist dashes on, heedless of self or passengers.

In the above cartoon, C. Wilks, a Frisco employe of the office of the Superintendent of Transportation, gives his version of the rattle-brained, speed-mad motorist, thinking not of his mother and son in the rear seat—charging on to death and destruction.

## Some Facts on Combustion in Locomotives With Questions and Answers

By D. S. FORSYTHE

General Road Foreman of Equipment

**A** GREAT many articles have been written on combustion and drafting locomotives, by experts who have made a study of these two items which are of such vital importance to the successful and economical operation of the locomotive.

From a study of these papers, written by authorities, I have prepared some questions and answers, which will be easily understood and enable those who should know, to become more familiar with this subject. The questions follow:

Q. What is combustion?

A. Combustion is that union of the element of the air known as oxygen, with the hydrogen and carbon of the coal. This union forms a gas element of the fire which is considered essential in locomotive practice. The distribution of air through the burning fuel in the proper manner causes the degree of heat with the smallest possible consumption of fuel.

Q. Is there such a thing as perfect combustion?

A. No. Perfect combustion, from a theoretical standpoint, is combustion that supplies just enough heat units to furnish a given amount of steam at all times to perform the work required without waste, and why it cannot be obtained is the manner of applying the fuel to the fire at irregular intervals and in varying quantities. The loss that is continually taking place from imperfect combustion is in a measure controlled by the grades, loads and speed. With a constant variation in cut-off, it is evident that perfect combustion cannot be maintained in locomotive practice, as it can in stationary boilers, where the engine load is not variable. For this reason more attention should be given to the operation of the locomotive at all times and to the condition of the fire and try and maintain a uniform pressure.

Q. What is a heat unit?

A. A heat unit is the amount of heat necessary to raise one pound of water one degree Fahrenheit.

Q. How many heat units does a pound of coal contain?

A. About 1,300 may be considered a fair average with the different grades of coal (bituminous) we have on this road.

Q. What is the amount of water evaporated for each pound of coal?

A. Between 6 and 8 pounds in a locomotive.

Q. What are the most important elements in the production of combustion?

A. The carbon of the fuel and the

oxygen of the air. These two elements have a natural affinity for each other which aids greatly in the process of combustion, producing both light and heat and also violent movement of gases in the firebox.

Q. What amount of air is necessary for combustion for one pound of coal?

A. The exact amount of air cannot be given in locomotive practice, but from 12 to 18 pounds is a fair average. Too much air cools the temperature in the firebox and wastes fuel. Too little air causes imperfect combustion and fuel waste.

Q. How can the amount of carbon and hydrogen be determined?

A. This can only be known by chemical tests.

Q. What is the difference between hydrogen and carbon?

A. Hydrogen is lighter than carbon. It raises first and is first consumed of the gases and a certain amount of moisture with it. Coal by combustion is changed into heat and waste material. The oxygen of the air changes its form and water is converted into gas called steam, to be later vaporized and changed back to water by cooling, always changed but never any destruction of matter.

Q. Why is oxygen necessary for combustion?

A. It is necessary because it must come in contact to whatever is to be burned, so that admission of air is the important matter in combustion.

Q. What changes must occur in coal before it can be burned?

A. It must first be broken down. Heat properties must be separated from the waste material. Heat is required to do this, and by its application gas and coke are produced. Coke is known as the fixed carbon of the coal and the waste material is ash. The hydrogen and carbon is equal to 75 to 85% of the whole.

Q. What results as to loss of heat does insufficient air to a fire box have.

A. A pound of carbon turned to carbon dioxide will convert 125 pounds of water into steam at a high boiler pressure, but with insufficient air only one-third as much water will be evaporated. So the restrictions of air area by reason of heavy or clinkered fire will cause an enormous loss in fuel.

Q. What are the three essential things to be considered in combustion?

A. First—the quality of the coal to be burned. Second—the admission of sufficient oxygen. Third—igniting temperature of the fuel burned.

Q. What has been done to meet the

demand for abundant air admission needed by the use of large locomotives?

A. First, increasing the length of the fire box, and also extending the fire box out over the trailers. Second, grates to have opening for passage of air from 28% to 40% according to style of grate and the kind of fuel to be burned.

Q. Why is the air that passes through the grate preferable to the air that passes through the side sheets which have jets?

A. In passing through the grates and fire the air becomes heated and is more ready to unite with the coal gases than the air admitted above the fire. All good firemen know the bad effects of holding the fire door open.

Q. Why is escaping gas from a smoke stack not noticeable?

A. Because it is colorless. Gases cannot be burned after they enter the flues on account of the low temperature and the amount of heavy gas they contain. The low temperature of the flues is proven by the fact that flues seldom leak in the front end as they are not subjected to the variation in temperature that they are in the fire box end.

Q. Is a fire that gives off black smoke evidence that all the gases are being consumed?

A. No. A fire that is in good condition will give off some black smoke when a fire is put in, but this will only be for an instant, unless a large amount of green coal has been used. Black smoke represents unburned carbon and loss of heat.

Q. Is there any difference in the amount of coal unburned in either end of the fire box under different conditions, or cut off?

A. There is when the engine is first started and getting under headway. The draft is stronger through the forward end of the grates due to the pressure of the baffle sheet in front end and covering a large part of the upper flues, and the air to supply the circulation will come from the lower flues, as the reverse lever is cut back the draft becomes less violent and gives a more uniform circulation through all the grate surface and flues.

Q. Why is it necessary to have the smoke box tight?

A. This is very important. No leaks should be allowed around the steam pipes, cinder hoppers, superheater damper bracket, or blow pipe bracket, as these leaks interfere with

(Continued on next page)