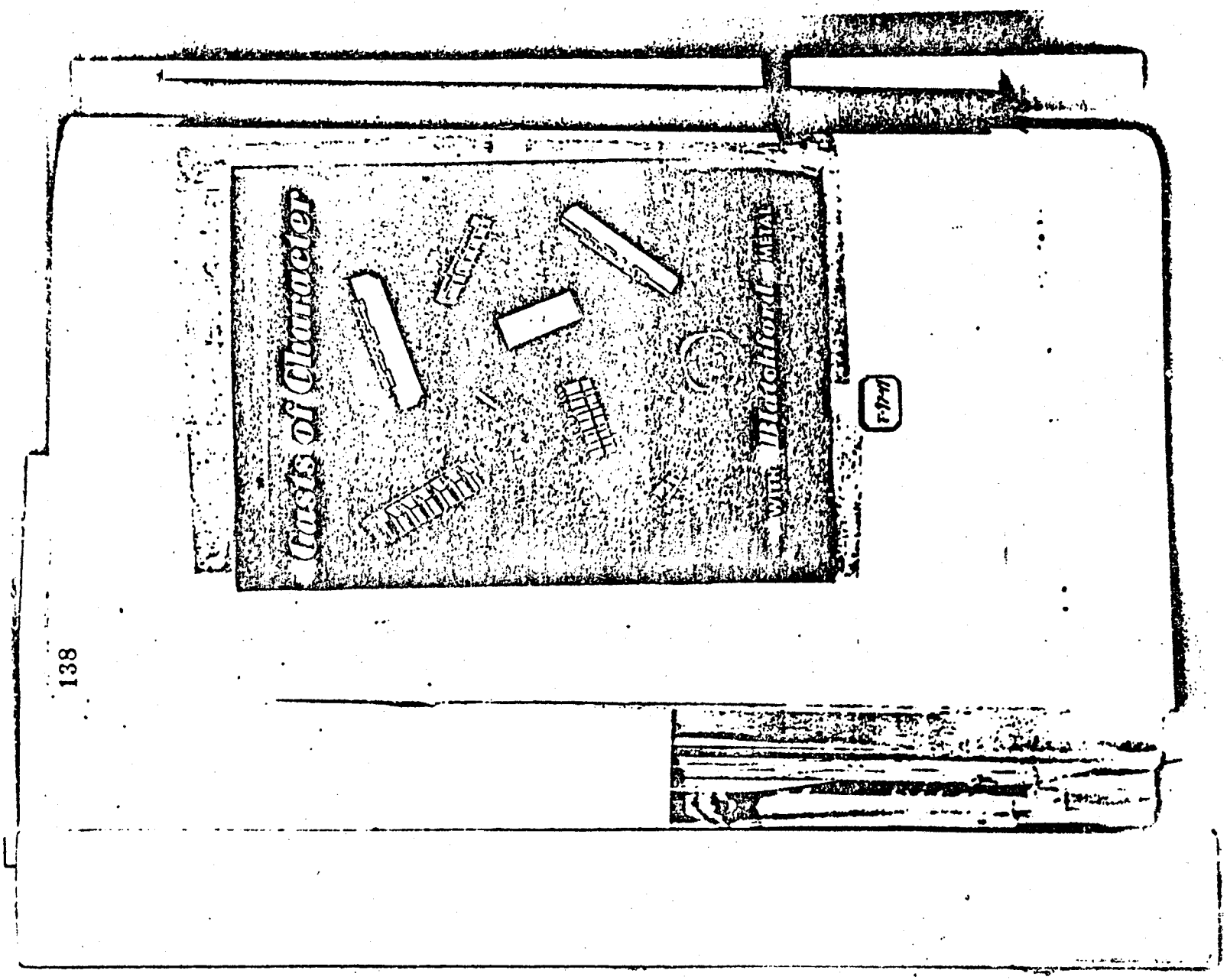
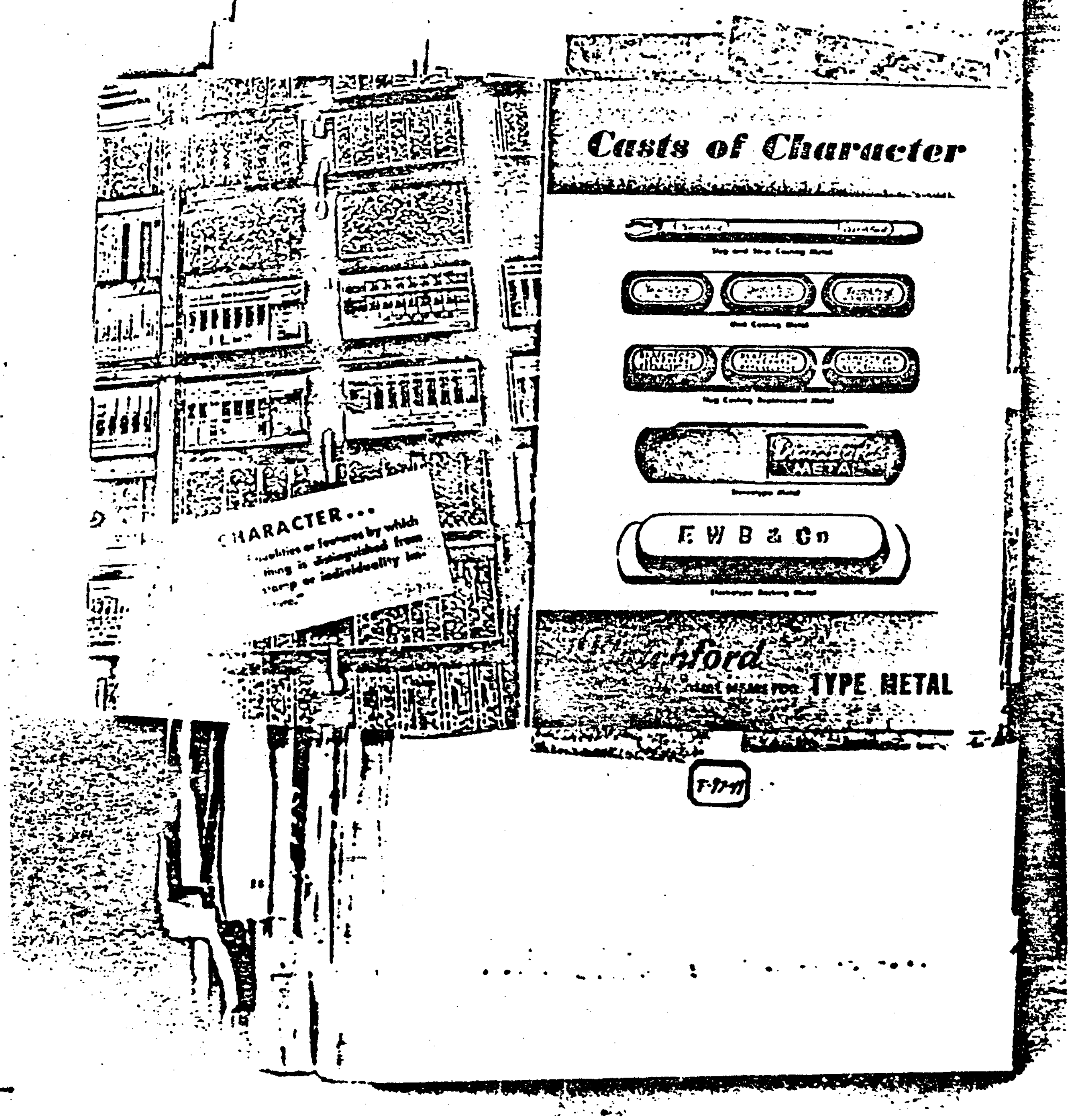
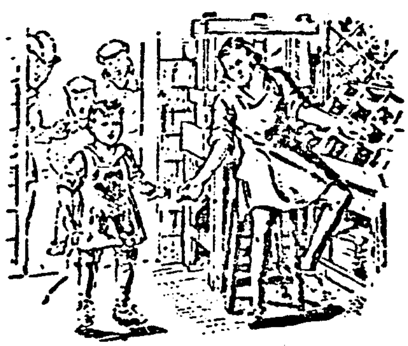






"Movable" metal type dates back to about the middle of the 15th Century. Basically, it was not unlike the alloy used today for high-speed composition on machines. The characters were, of course, handset, just as is much fine modern typography.

Type Metal

...THE AGELESS ALLOY ATTUNES TO THE TEMPO OF THE TIMES

Printing metal, much as we know it, has been in use for about 500 years. Though there is some question as to the date of the original employment of "movable" metal type, certainly one of the first items printed by this means was a papal indulgence bearing the date of October 22, 1454. The type doubtless was cast in metal molds. Some of the printing was so small the type which produced it could hardly have been cast in sand or clay.

The first printers to employ "movable" type were their own type founders. They discovered that a three-metal alloy of lead, antimony and tin made the best possible typecasting and printing metal. If these early craftsmen in the graphic arts were to return today to the scenes of their 15th century operations, at least one thing would seem reasonably familiar to them: the type metal. And the "movable" type characters themselves, aside from a sharper cast, greater uniformity and wider variety, would not seem unfamiliar. Nor would our method of hand composing it to form words, lines and paragraphs.

The real surprise to the eyes of the ancients would be our mechanical typesetting equipment. They would see metal they recognized doing amazing things automatically: emerging in fully set lines from Linotypes, Intertypes and Ludlows; coming out character by character from Monotypes, Thompsons, [illegible] and other type casters; coming inch by inch in the shape of leads, slugs, rules and borders from Elrods and Monotype material makers; being taken page by page from the stereotype casting machines; finally, they would see "their" metal filling and backing the shells of electrotypes.

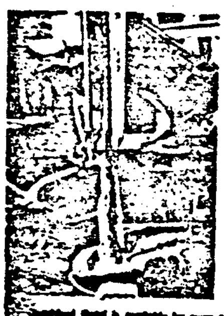
The 20th century descendant of the 15th century alloy is a most adaptable metal, not the least of its accomplishments being the ability to record its own feats of versatility.

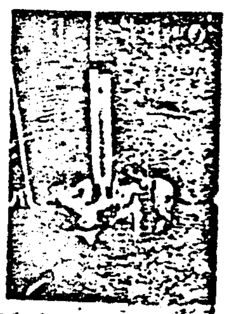
When You Buy Type Metal

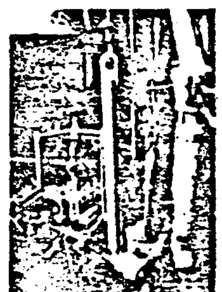
YOU INVEST IN "FIXED-FLUID" EQUIPMENT

The purchasing of a stock of type metal is looked upon by the thoughtful printer and compositor as a capital investment. Type metal is printing equipment, the same as the machines on which it is cast, the same as the presses on which it is used. Like these machines, type metal is subject to the wear and tear of ordinary service. And like them, the metal stock requires regular maintenance.

Unlike stationary composing and printing equipment, however, type metal, properly maintained, does not depreciate in value or in usefulness. A composing machine or a printing press eventually loses its efficiency no matter how well cared for. Good type metal, well handled, is just as efficient, as serviceable, at the end of a ten-year term as at the beginning. A thousand-dollar stock, correctly serviced as required, is still a thousand-dollar stock, representing the-







tinuous in metal content after delivering a span of service which might have forced into retirement equipment purchased new along with the metal. Type metal is, in truth, as enduring as the lead, the antimony and the tin of which it is composed.

Type metal, in use, accurately reflects not only the acquired characteristics of the alloy but also the inherent character of the base metals. In the choice of ingredients for Blatchford Metal, we make effective use of metal resources, research laboratory apparatus, refining facilities and a background of metal-mixing know-how without parallel in the field. To spell out exactly what this combination means to the type metal buyer, it can be said, first, that the lead in Blatchford is Grade A 99.9% minimum; the antimony is top grade for type alloy purposes 99.5% minimum; the tin is Grade A 99.8% minimum.

Second, with these prime quality metals as raw materials, we enter the alloying stage with a metal-mixing experience that goes back nearly a hundred years. Correct alloying sequence, proper proportioning, rigid time and temperature control for heating, holding and cooling all contribute to the uniformly high operating efficiency of Blatchford Metal when it reaches the hands of ultimate users.

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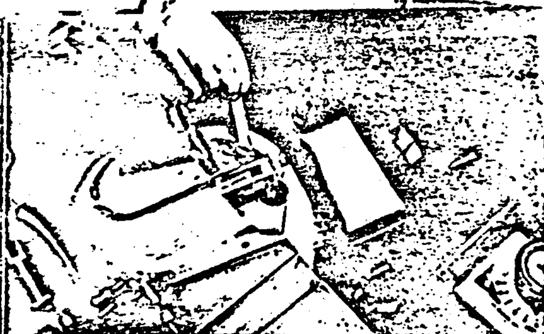


[illegible]

There's a Blatchford Metal for Every Composing Room Method

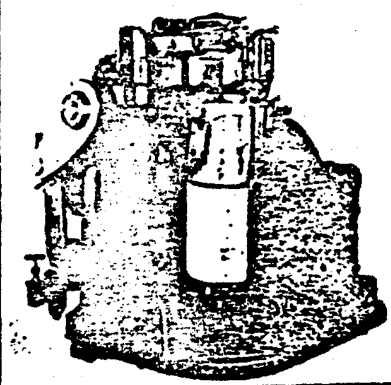
Experience has shown that, for each of the metal-molding methods in general use, there is a fairly well defined lead-antimony-tin combination that works better than any other, assuming of course, that the particular composing machine is being operated as suggested by its maker.

The factors which control the type metal formula are, in the main, related to the melting point and melting range which differ with various lead-antimony-tin combinations. The lowest possible melting point is desirable in all cases because it saves fuel and doesn't "punish" the metal. A short melting range is equally to be sought because it permits speedier operation and the resulting type and slugs have better grain structure and better printing qualities.

Due to the mass of the produced piece of metal, it is not always possible to achieve the optimum combination of low melting point, short plastic range and fine, uniform grain structure. Hence compromises must be effected.

The machines which cast slugs operate most efficiently with a type metal containing 1.0 to 4.0% tin, 11.0 to 12.0% antimony, remainder lead. Total impurities should not exceed 0.10%. Casting temperatures range from 540°F to 560°F, depending on the size of the slug cast.

Blatchford electrotype metal [illegible]



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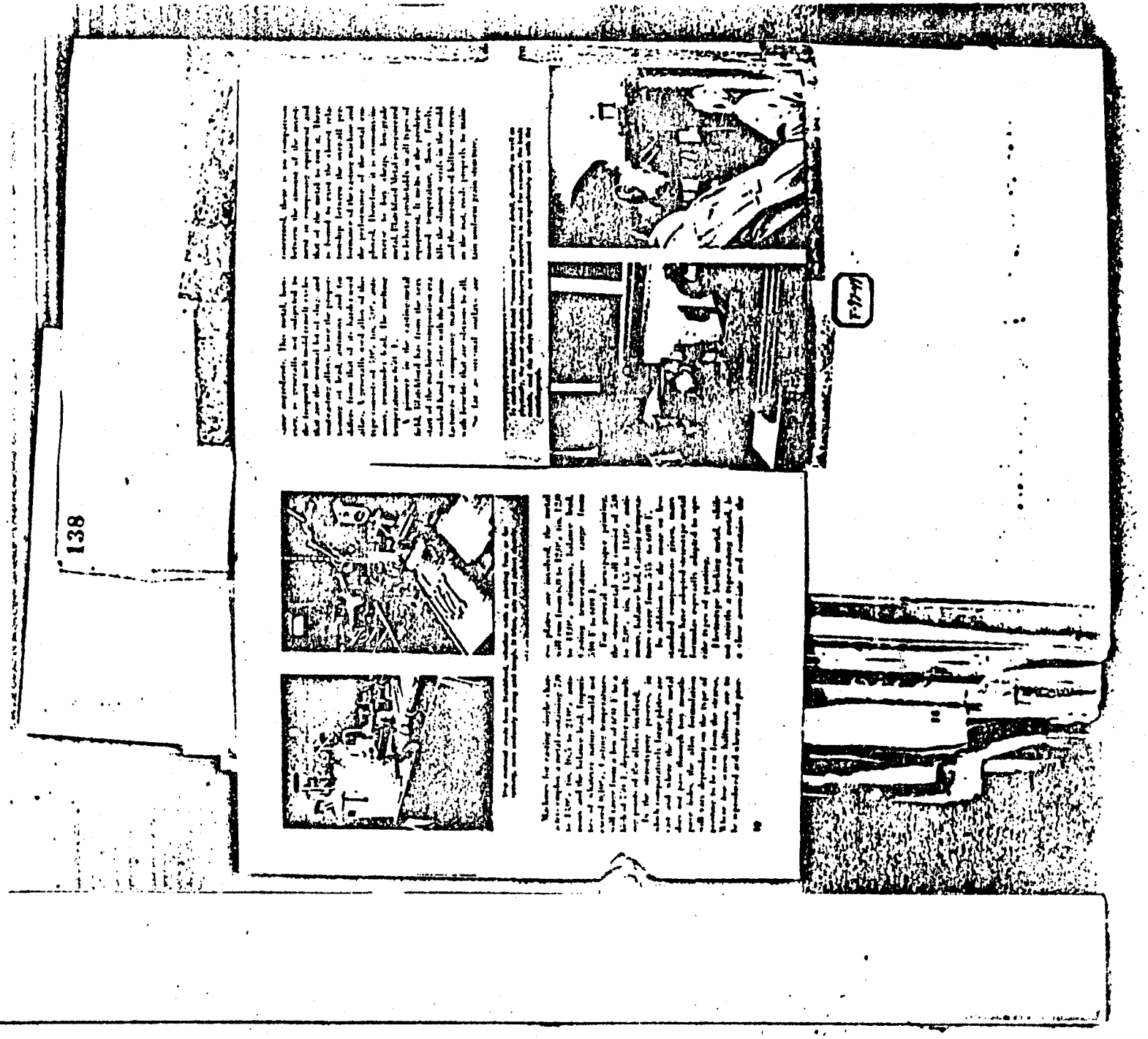


THE WHY OF

What's in Type Metal

A [illegible] printers' alloy that has seen [illegible] five centuries of service at its [illegible], with no major change in its basic form, may fairly be said to have proved its worth as a printers' metal. Except for greater purity of its ingredients, resulting from improved refining methods, and for greater uniformity and more accurate formulation due to advancements in alloying technique, the type metal mirrored by the print you are reading differs little from that which produced the printing read by Christopher Columbus.

It would be idle to assume that during these 500 years no attempts have been made to use other metals or alloys or other materials for the purposes served by the historic alloy. But, except in a few minor uses, no acceptable substitute for the lead-antimony-tin alloy has been produced.

The principal reasons for using these three metals are their relatively low melting (solidification) temperatures, their co-operative temperaments, good castability, ease of handling, availability and economy.

The lead in the alloy contributes weight and stability. It is the "mother," the forming body of the alloy and, as such, is present in higher percentage than the other elements.

The antimony contributes hardness and it exerts a very important influence on the volume change of the alloy at the moment of solidification. Antimony expands somewhat on solidifying and thus counteracts the tendency of the alloy to contract. The presence of antimony is the reason printing metals are able to maintain their volume in the mold.

The tin confers toughness and hardness, and imparts fluidity to the alloy when molten. The presence of tin enables the liquid metal to seek out every fine recess of the matrix or mold and to solidify in clean, sharp detail.

The relatively low solidification temperatures of the commonly used lead-tin-antimony alloys lower heating costs, shorten the time required for cooling the metal in the mold and reduce the possibility of corrosion of matrix faces.

Producing prime grade type metal, metal that gives casts of character, is no hit or miss proposition, of course. The reputation of Blatchford Metal for the utmost in dependability and uniformity is very carefully guarded. There are no secret formulas or processes involved in the making of the metal. Rather, the secret of its through-and-through quality lies in everlasting vigilance, scrupulous attention to detail from the receipt at the plants of the basic metals to the shipment from stock of the branded pigs and ingots.

Blatchford Metal is constantly studied by metallurgists using the most up-to-date scientific devices in the laboratory and its progress through plant production is guided by the hands of experience.

Laboratory tests of the basic metals and of the finished alloy include the use of the spectrograph, metallograph, polarograph, X-ray and other electronic devices. These instruments of science watch and scan Blatchford to make certain the metal measures up to the required standards of purity, freedom from harmful substances, correct proportioning of ingredients, proper distribution of elements, fineness of grain

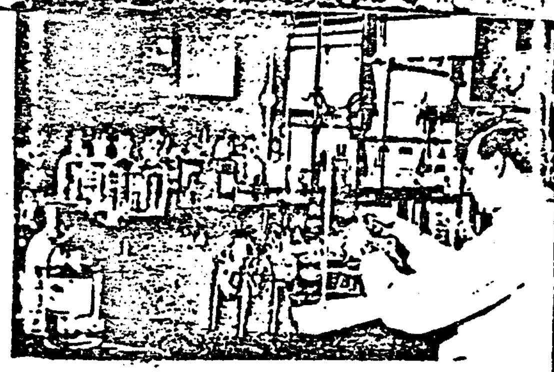
[illegible]

and other features to determine characteristics and properties not visible to the unaided eye.

Blatchford also regularly undergoes numerous tests for physical fitness. The alloy must fully prove its tensile strength, hardness, toughness, sturdiness under stress and ability to flow freely when molten.

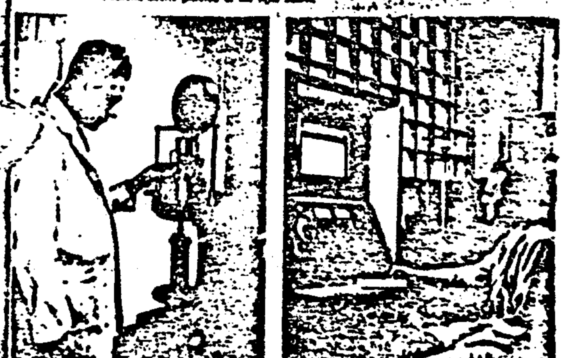
Through long years of intimate contact with all phases of the graphic arts, the makers of Blatchford Metal have evolved testing procedures which insure the production of a metal perfectly suited to the needs of all composing machines, stereotype casting equipment, letter press printing equipment and the electrotype-making process.

It should make sound sense, even to the uninitiated, that Blatchford, being a member of the National Lead Company family, and a member of which the rest of the family is very proud, benefits tremendously by access to and use of research and production facilities of virtually unlimited scope. To the thoughtful buyer of printing metals, the fact of this association alone is of real significance.



Testing type metal samples for [illegible] are on the [illegible] equipment shown here. This is the focal point of the famous "Blatchford [illegible]" type metal testing service available to all purchasers of Blatchford Metal.

To determine the hardness of Blatchford Metals, specimens of the various alloys are tested on the Brinell hardness tester, shown at the left below. Spectrographic determinations of percentages of constituents in the alloys are made, with the [illegible] pictured at the right below.

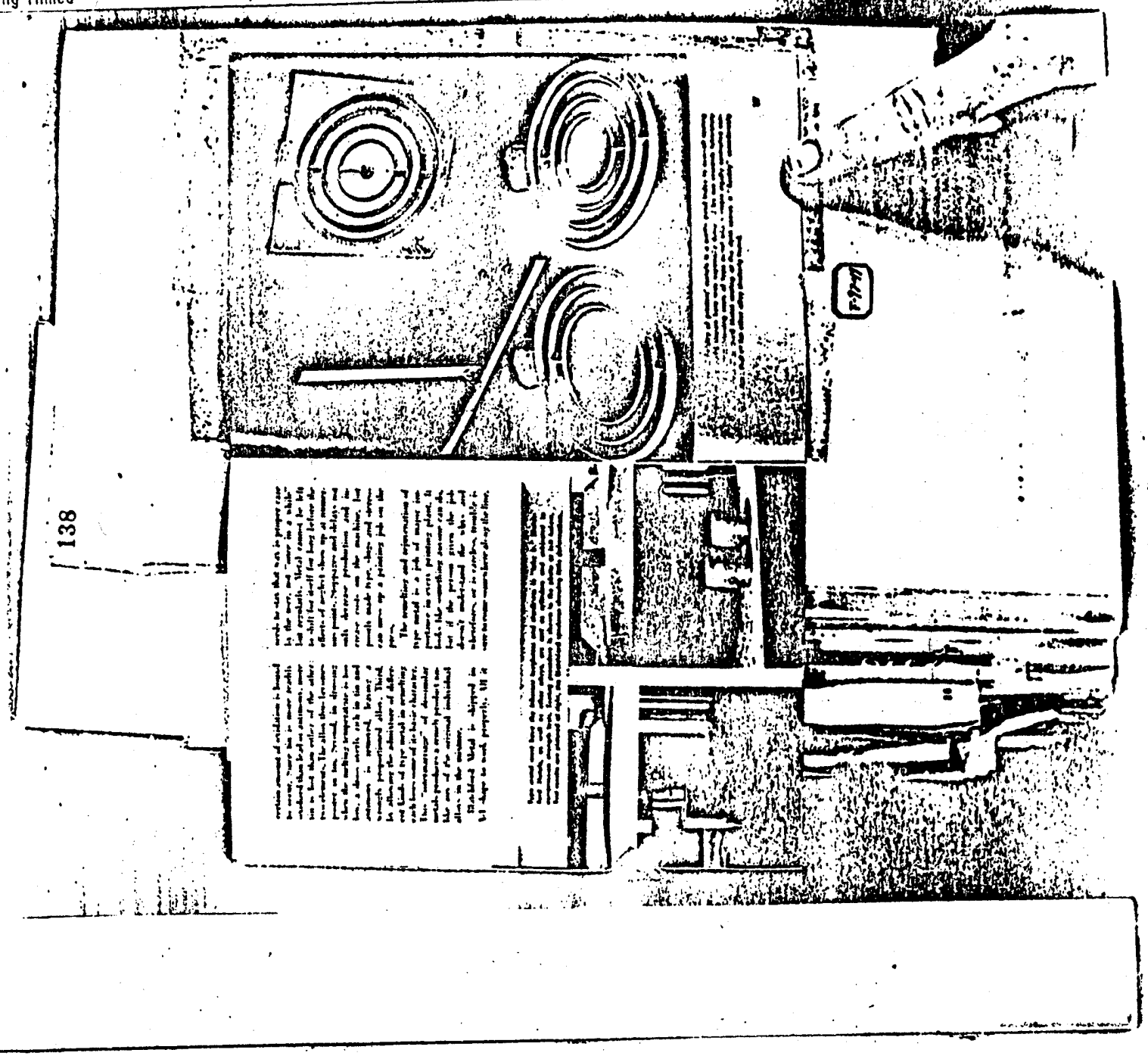


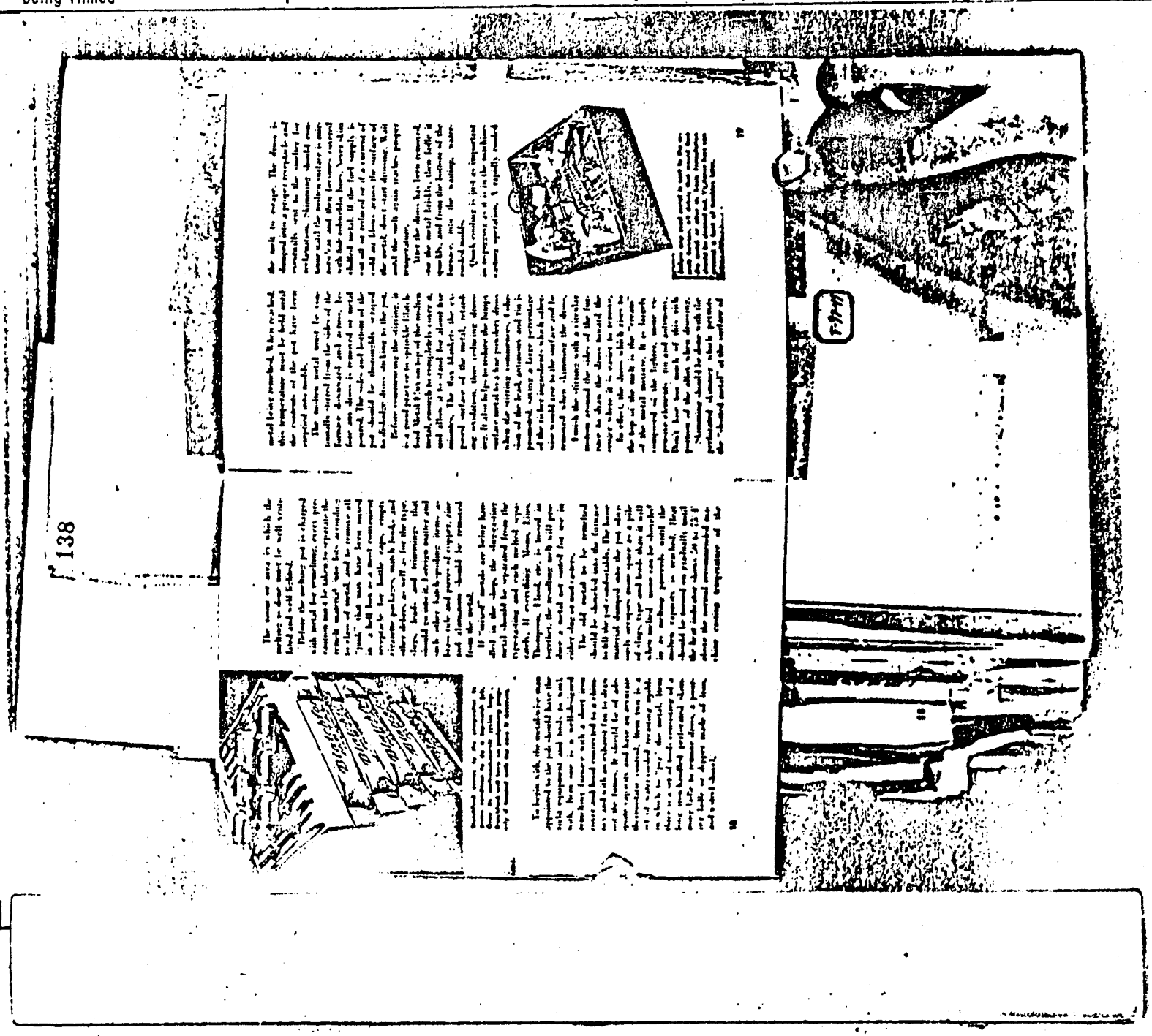
The Service Metal Renders

REFLECTS THE CARE IT RECEIVES

Type metal is unique among the alloys because its work is never done, as it were. In plants having [illegible] and [illegible] equipment, the type metal is usually in continuous circulation. Part of the time it is solid, part of the time molten. Week ends follows week cycle, 'round the calendar. In spite of continuous heatings and coolings, to say nothing of wear and tear on the [illegible] and stress in [illegible]ing, properly "conditioned" type metal does its job uncomplainingly, so to speak. But the metal must be kept up to its physical and chemical par. The composition of the alloy is prone to change during repeated remeltings because of the varying volatility of the components.

A change of composition, which means a change in working properties, too, occurs in three ways. First, in remelting type, slugs or stereos, a





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alloy has its tin and antimony constituents uniformly distributed in their lead "holding body" a structure that gives better operating and printing results. A slowly cooled alloy has most of its lighter constituents in its upper portion.

Dross, as the term implies, is a waste substance insofar as its immediate usefulness is concerned, resulting from oxidation of molten metal and certain impurities therein. The hotter the metal becomes and the longer it stays molten, the greater the amount of dross that will form. Violent agitation of the molten metal exposes fresh surfaces to the air and raises dross production.

Of the three base metals in type metal, tin has the lowest melting point, hence it oxidizes faster than lead. The lead oxidizes faster than the antimony. An alloy, such as a slug-casting metal, originally containing 3.0% tin, 11.0% antimony and 86.0% lead, may be changed during regular remelting to 1.5% tin, 12.0% antimony and 86.5% lead, by proportion. The percentage of antimony, which oxidizes last and least, rises as the percentages of tin and lead fall with oxidation.

Metal that has lost its original balance when remelted causes trouble in several directions when the resigned alloy is brought to the machines for casting. Low in tin, it requires a higher operating temperature which, in turn, makes for poor faces and hollow bodies. High in antimony, the metal tends to clog the crucible throat and the mouthpiece.

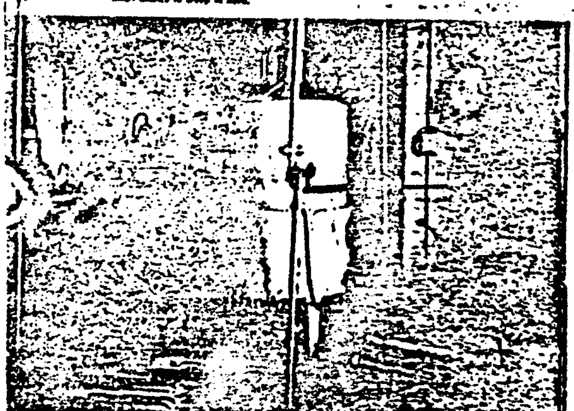
In one cycle of use, the average loss in remelting line-casting material is 1½%. In remelting unit metal, the loss will run 1 to 1%. Carelessness or inexperience can raise these percentages considerably.

Every pound of metal lost in dross reduces the metal supply and its efficiency by that much. A pound of Blatchford Replacement Metal should replace each pound of dross.

Because individual remelting procedures and equipment vary and because the remelted metal does not assay uniformly, no single "toning alloy" can be expected to right all metal wrongs. Each user must size up his own situation and work out a proper replacement system.

The Blatchford brand identifies top quality type metals, metals with the built-in ability to work smoothly and efficiently in all casting machines. Made right to start with, they should be well cared for to insure continuous trouble-free performance.

A modern, high-efficiency remelting setup. Furnace of good design and adequate capacity, water-cooled multiple molds, thermostatic controls, [illegible] in a clean, light, well-ventilated room. Operated by a man who knows correct [illegible] and [illegible] procedure, the ills to which type metals may fall heir have small chance to creep in here.



BLATCHFORD METAL FLUX

A scientifically formulated flux produced by the makers of Blatchford Metal. Cuts down dross losses by retarding oxidation during remelting. Sprinkle flux on surface of molten metal before stirring batch and let stand for five minutes, then stir. A pound of Blatchford Flux will cleanse four tons of type metal.

Blatchford Metal Flux is sold in 5-lb., 25-lb. and 50-lb. containers.