INDUSTRY during the Civil War has been studied from two points of view: the impact of the war on industrial development and the contribution of industry to the war effort. On one hand there are writers who argue that the Civil War, coming when it did in the history of American industry, transformed productive processes. They say that the demands of the military for unprecedented quantities of finished goods and the sudden setting up of large state and federal spending programs ushered in the age of industrial capitalism and spelled doom for the industrial structure of commercial capitalism. Others, arguing from similar evidence, show that in the decades before the war technical development and industrial organization had advanced to the point where they were well equipped to meet the demands of a great destructive conflict, that they were responsible for its general nature, and that they determined its outcome.¹ There is truth in each of these points of view. Both indicate the vital interconnection between industry and the war effort in the 1860's.

In 1860 Pennsylvania's mechanical industries were producing goods to the value of almost double the production of the whole South. The state was preeminent in the metal industries and performed a large share of the nation's flour milling, textile and clothing producing, and meat packing, all basic war industries. Every one of these industries made rapid strides during the war

years. To some extent this advance, following on the heels of two business crises, reflects wartime inflation. It reflects also the effect of higher tariffs, on the promise of which the Republicans had gained large sections of Pennsylvania's vote. But it was the war effort itself, in the form of large government contracts, that was the greatest incentive to business. All through the conflict the manufacturer's greatest opportunity was in government orders, and there were few who did not heed the call. In the city of Philadelphia, the North's largest manufacturing center, fifty-eight new factories were set up in 1862, fifty-seven in 1863, and sixty-five (most of these, according to reports of building inspectors, very large) in 1864.2

To some extent there was diversion of manufacturing activity from civilian to wartime goods; cotton and carpet mills were changed to woolen mills, machine shops turned out guns, saw factories made sabers, and jewelry manufacturers produced brass buttons. Federal arsenals expanded their activities and gave emergency employment to thousands of men and women. Frankford Arsenal became an important producer of ammunition, while Schuylkill Arsenal, a depot for uniforms, blankets, and general equipment, operated workshops and warehouses in South Philadelphia.3 Besides these Philadelphia had a government-operated laboratory for the manufacture of surgical supplies.

The Fort Pitt Works in Pittsburgh was one of the wonders of the nineteenth-century world, equipped to make mammoth castings with an efficiency that attracted much attention. This establishment was greatly expanded during the war and was commissioned on several occasions to experiment with the casting of giant howitzers.4 The Phoenixville Iron Works, another large Pennsylvania plant, invented the process for manufacturing a three-inch rifle gun, one of the most widely used fieldpieces of the time.5

The advance of the metal industries was especially significant in Pennsylvania. Iron, in addition to being the munitions metal,

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2 These figures and the statistics of industrial production which follow are from E. D. Fite, *Social and Economic Conditions in the North during the Civil War* (New York, 1930), passim.  
was now utilized in all branches of manufacturing for an increasing variety of purposes. In Pittsburgh, the principal iron center, six large mills were built during one war year; the city produced in the last eighteen months of the conflict $26,000,000 worth of iron and steel. In the Lehigh district the output of anthracite pig iron jumped from 173,075 tons in 1860 to 214,093 tons in 1864, a rise of about twenty-five per cent. The same trend, in spite of labor shortages, was observable in the Schuylkill and the Susquehanna areas—in fact, wherever pig iron was produced. During the four years of war Pennsylvania was turning out eighty per cent of the annual amount produced in the North. Altogether output increased by 160,000 tons.

An important wartime task of the iron industry was the production of rails and rolling stock for the overworked railroads of the North. Pennsylvania doubled her annual output of iron rails during the war, and the shops of the state turned out most of the fifty engines and three thousand freight cars required by the busy Pennsylvania Railroad, a main link between the industrial East and the armies operating in the West.

The Civil War was the first large-scale conflict after the introduction of the railroad. A revolution in transportation inevitably brings a revolution in the science of warfare. The railroads changed the rules of military campaigning. They increased the penetrability of the South and added new complexities to many a military situation by facilitating troop and supply movements. The protection, destruction, and reconstruction of roads were now primary military considerations. The railroads of the North welded the Union fighting forces into a compact mass with an efficiency that would have startled Napoleon.

In the work of routing supplies and operating lines constantly subjected to enemy raids Pennsylvania’s railroad men performed notable service. Thomas A. Scott, a combination of seer, politician, financier, and engineer, who had been named to Curtin’s military bureau and served under Cameron as Assistant Secretary of War, was one of the master railroaders of America. It was he as much as any other man who brought twenty-three thousand men and supplies from the Virginia front to the relief of Rosecrans at Chattanooga in eight days, three and a half less than the time estimated. Throughout the war his special talents served his country well. Another railroad man notable in the war effort was
a West Pointer, Herman Haupt, who had been general superintendent of the Pennsylvania Railroad and served as coördinator of rail facilities in the War Department under Stanton. At Second Bull Run and at Gettysburg his technical training were extremely valuable in rebuilding bridges, repairing damaged lines, and scheduling the transportation of supplies, refugees, and wounded men over inadequate railway lines. 

It is clear that the contribution of Pennsylvania industry to the war effort was considerable. This was, of course, the participation of a geographic area. The state as a political entity played its major wartime role in the mobilization of fighting man power.

General Upton, noted critic of American military policy, lamented what he called "the intrusion of the States in military affairs and the consequent waging of our wars on the theory that we are a confederacy instead of a nation." Few will deny that this is a legitimate criticism of army administration in the Civil War, but in 1861 there appeared to be no alternative, and it was, in fact, in the course of that war that the people learned to make a nation out of their confederation.

In 1861 the administrative agencies with which men were familiar by regular contact were those provided by state and county governments. Most Pennsylvanians had little to do with their federal government beyond the use of the postal system. In those days one was less likely to appeal to his congressman than to write to his governor or waylay his assemblyman. There are cases on record of men who were willing enough to volunteer for service in their state's military forces but who refused to take the oath of allegiance to the United States.

This attitude was fortified by the principle of state rights, a doctrine which is associated primarily in most minds with the South and secession, but which was a potent political factor on both sides of Mason and Dixon's line. The real basis of belief in state rights was sectionalism; although Pennsylvania had less conspicuous sectional prejudices than did the New England states or those of the Mississippi valley, her industrial and commercial interests dominated political life and took it for granted that their

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6 Samuel R. Kamm, Civil War Career of Thomas A. Scott (Philadelphia, 1940); Herman Haupt, Reminiscences (Milwaukee, 1901).
special interests could be protected against those of other sections only by this doctrine. To the question as to whether the state or the federal government should recruit, train, and equip military forces the obvious answer in 1861 was that these are natural functions of the state. Their assumption by the federal government might lead to one section's predominance in that government, acquisition of control of the large funds involved, and dictation of war policies at the expense of other contributing sections. During the weeks of Buchanan's inactivity in the face of an extensive revolt Pennsylvania officials were taking the initiative in military preparations. From the time of South Carolina's secession Curtin, the governor-elect, with the financial aid of certain Pennsylvania business men, was busy ascertaining the extent of the war climate in the South. He used a tactic now used on a more lavish scale by the Axis nations. Several clever young men were employed to visit the South, ostensibly as traveling salesmen and telegraph operators, but actually to prepare on-the-spot reports on opinion and military preparedness in the southern states.8

On April 9, three days before the outbreak of hostilities, Curtin sent a message to the legislature recommending that it authorize the reorganization of the state militia. He suggested that a military bureau be established at Harrisburg, that militia laws be modified, and that arms be distributed to volunteers who would enlist in local companies. On the day Fort Sumter was bombarded, a bill embodying these recommendations was made law. The next day a bill to define and punish treason was passed.9

The initiative in recruiting in the early days of the war was taken by towns and individuals. A mass meeting with prayers, speeches, and singing would urge young men to enlist and enroll the names of those who responded; or a patriot would gather his friends and the other young men from the neighboring countryside and sign them up. Election of company officers would proceed as soon as enough names had been enrolled to form a company, and these officers, having provided themselves with official drill manuals, would undertake immediately to drill their men.

9 Appleton's Annual Cyclopaedia, 1861 (New York, 1862), pp. 569-572; J. R. Sypher, History of the Pennsylvania Reserve Corps (Lancaster, 1865), ch. II.
When a local company had enrolled a minimum of eighty-three officers and men, the governor was asked to accept it for training and service. Units accepted were ordered to Camp Curtin at Harrisburg or some similar training center, their expenses being borne by the state. Energetic efforts to furnish uniforms, arms, and camp equipment were not always successful; state and federal government competed for the purchase of limited available stocks, and agents for the state were not particularly scrupulous in their handling of public funds.

Recruiting in Pennsylvania during the first year of the war is in large part the story of a standing antagonism between two rival chieftains in the Republican party of Pennsylvania—the Secretary of War and the governor. Simon Cameron, who had bargained his way into Lincoln’s cabinet, was a man of ordinary ability. The wartime administration of the War Department was too big a task for his mediocre talents. He was never able to rise above the bickering, double-dealing, and graft that were to characterize Pennsylvania politics in the gaudy post-war days when he was supreme. Andrew Curtin appears to have been a higher type of public servant. Certainly he had a larger appreciation of his responsibilities and might have preferred to dispense with “politics as usual” for the duration. He had full authority in organizing military units requisitioned by the federal government, for it was the governor who appointed field and staff officers for regiments of the state. Cameron, however, was not satisfied to sit idly by and let the political spoils of recruiting fall to Curtin. As Secretary of War he chose his own Pennsylvania colonels and sent them to gather soldiers in Curtin’s preserve. In August Curtin complained directly to the President that many Cameron appointees were recruiting in Pennsylvania and that they went so far as to draw men out of legitimate organizations already formed, even breaking up companies that were ready to march. This competition between state and federal authority had the obvious effect of causing delay and disorder.¹⁰

Further confusion arose from the fact that state and federal responsibilities in organizing army units were not clearly defined. Was the state or the federal government to pay the volunteer’s ex-

penses between the time he reported at the place of rendezvous and the time he was mustered into service? Which agency was to bear the expense of camp equipment and uniforms? What was the state to do when the federal government found it impossible to furnish required equipment for volunteer organizations already mustered in? What was the governor to do with three-month volunteers already assembled when the federal government suddenly ordered that all further quotas must be filled with three-year volunteers? There were people, particularly in the loyal opposition, who noted the confusion and added their observations to the store of ammunition to be fired in subsequent political battles.\textsuperscript{11}

But thousands of young men, spurred by that complexity of motives that induces men to take up arms in any war, continued through the first year of the conflict to clamor for the privilege of representing their state at the front. Lincoln's first call on Pennsylvania for fourteen regiments of seven hundred and eighty men each was quickly and easily answered. Contemporary accounts of the enlisting fever describe the bitter disappointment of lads who were turned away because the established quotas for their districts had been filled. At the close of 1861 Pennsylvania had more than a hundred thousand men in the armed services.\textsuperscript{12}

By the spring of 1862 the wave of volunteering had subsided. It was generally felt, even in the War Department, that the army was now large enough and that additional men would be needed only for replacements in existing organizations. The enthusiasm of the preceding year had been throttled by the disaster at Bull Run and the apparent inactivity of the armies in the eastern theater of the war. The magnitude and potential destructiveness of the contest were becoming evident. A soldier's life no longer had the appeal it had had a year earlier. Young men were taking jobs in expanded war industries, where a restricted labor market assured them a share of the apparent benefits of wartime inflation. It must be remembered also that large sections of Pennsylvania's population, especially in the foothills and valleys east of the Allegheny watershed, were close kin to the valley folk of Virginia and the Carolinas and therefore must have been less enthusiastic

\textsuperscript{11} Ibid., 131-132.
participants in the war than they might have been otherwise. The Germans of Lancaster, Lebanon, and Berks Counties, descendants of eighteenth-century immigrants, did not respond to the oratory of men such as Carl Schurz in the same way as did the German immigrants of 1850 who had settled in the new West. Their religion taught at least some of them to abhor war, and they were not likely to volunteer for military service.

In April of 1862 Cameron's successor, Stanton, considering the army stabilized at 500,000, discontinued the recruiting service. After the federal losses of the spring of that year calls were made for three hundred thousand and soon for three hundred thousand more, all to be mustered by state authority. But in Pennsylvania and other industrial states the familiar patriotic appeals for volunteers were no longer successful. Quotas could not be filled.

The War Department now set up a pattern for the operation of a state draft in states that were lagging. While this was to be conducted entirely by the state, its procedures were outlined by the War Department. Gradually the federal government was taking over more and more responsibility in the mustering of men. The state draft was intended primarily as a whip to encourage volunteering, and such was its effect. Volunteering under a particular call was to proceed to an established deadline, after which quotas would be filled by conscription.

The bounty system now came forth in all its ugliness. A community threatened with the uncertainties and stigma of the draft would do its best to buy its quota of men. And there was popular opposition to the substitution and commutation loopholes in the draft law.

Resistance to the draft was to assume large proportions, especially after the federal government assumed full responsibility for its administration in 1863. Enrolling officers were driven out of Greene County, and in Bedford they were thoroughly intimidated. Draft resistance in the anthracite coal regions lay deeper than the desire to evade service, involving as it did a combination of economic, cultural, and wartime factors. Before the draft question came up, mine operators had had to call in troops and

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19 Ibid., pp. 674-675, 1004-1006; Fred A. Shannon, The Organization and Administration of the Union Army, 1861-1865 (Cleveland, 1928), vol. II, pp. 221-225; McClure, op. cit., I, ch. 49.
make wage concessions in order to quell riots. By the time the state draft was in full operation, five thousand were said to be organized to resist it. It is reasonable to suppose that the miners, most of them recent immigrants seeking in America the promise of better living conditions, might regard as their friends the enemies of their oppressive employers. An atmosphere of riot and violence was intensified when these men discovered that they would be compelled to take up arms against their bosses' foe. Without doubt the coal operators too, because of the shortage of labor, found the draft distasteful and would welcome suspension of conscription.

The draft disturbances in the coal regions led to a conflict between state and federal jurisdiction. In the coal regions judges ordered national military authorities to turn their prisoners over to civil courts. When the officers refused, the courts instituted proceedings against them. Injunctions were issued restraining army officials from operating the draft, and on appeal to the state supreme court they were upheld. This was in effect a declaration that the federal enrollment and draft were illegal in Pennsylvania—a case of nullification. The army disregarded the court actions, and a fortunate change in judgeship led to a reversal of the decision.15

During the federal administration of conscription the evils of the bounty, substitution, and commutation continued, but by one means or another Pennsylvania managed to put her share of fighting men into the Union ranks and came close to filling all her quotas. Her total number of enrollments, out of a population of some three million, was 337,936, which, allowing for reenlistments, represents perhaps a quarter of a million soldiers, one-eighth of the whole fighting strength of the northern armies. Fewer than a tenth of Pennsylvania's recruits were drafted men or substitutes; 28,171 paid for commutation rather than take up arms.16

For all practical purposes the "citizen soldiery" learned the essentials of discipline and combat techniques in actual campaigning in the early part of the war. The same was true of the majority of their regimental officers, from colonel down. There were colonels such as Edward O'Brien of the 134th Pennsylvania 

who had had some experience in the ranks in the Mexican War, and there were some few others like John C. McCalmont of the 10th Reserves who were West Point graduates. Henry Bohlen of the 75th had served in the Mexican War and in the French army in the Crimean War, but his military background was exceptional. Professional soldiers such as Meade, Reynolds, Gregg, Gibbon, and Humphreys, who were of that West Point generation that had served its apprenticeship in the Mexican War and on the frontier, rose quickly to the command of army divisions and corps.  

Most of Pennsylvania’s troops fought under colonels who in 1860 had been merchants, lawyers, engineers, or manufacturers and who then had no military experience beyond the parading of local militia companies. The war itself made soldiers of these officers and of the men they commanded. There were some of them in every important campaign of the war, in Virginia, in the Mississippi and Tennessee valleys, and through Georgia to the sea. The large majority served in the armies that operated between Washington and Richmond and eventually forced Lee’s surrender at Appomattox. Almost thirty-five thousand Pennsylvanians were in the army that bled Lee’s forces white at Gettysburg and turned the tide of the war. Without doubt they fought more furiously on those three July days than at any other time. Many of them were fighting within a few miles of their homes.

These are some of the aspects of Pennsylvania’s participation in the irrepressible conflict. Mineral resources and industrial development made the state the source of basic war materials. Because of its proximity to the Confederacy it was subjected to the constant threat of invasion and its southern counties were brought into the theater of war. Its fertile valleys fed northern armies and beckoned to hungry southern armies, offering them natural highways into the heart of the North’s industrial region. Its mixed ethnic background and the demand of its industries for labor aggravated problems of man-power mobilization at a time when American armies were made up primarily of volunteers.