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## THE YUGOSLAVIAN/SOUTHERN SLAVONIC AIR FORCE UNTIL 1930

### *Absztrakt*

*A cikkben a szerzők bemutatják a délszláv légierő első 18 évét, elsősorban magyar katonai forrásokra támaszkodva. Déli szomszédunk tiszteletre méltó és eredményes erőfeszítéseket tett a XX. század harmadik évtizedében egy ütőképes légierő megteremtésére, fenntartására, s az azt kiszolgáló hadiipari képességek megteremtésére. 1930-ra már rendelkeztek a hadsereg szükségleteit kielégítő repülőerőkkel.*

*In this article the authors will describe the first 18 years of Yugoslavian Air Force, primarily relying on the Hungarian military sources. Our southern neighbour made respectable and successful efforts to create and maintain a powerful air force in the third decade of the XXth century, and to build up the military-industrial capabilities serving it. By 1930, they already had an air force which could serve the needs of their army.*

**Kulcsszavak:** *légvédelmi tüzérség, légvédelem, „kis Antant” ~ Air Force, Yugoslavia, “small Entente”*

## INTRODUCTION

In the first two decades of the twentieth century the spread and development of a still relatively new means of air warfare were explosively fast. In 1900 the first steerable ZEPPELIN type airship was built. The Wright brothers (Wilbur and Orville) drew the military's attention to airplanes with their successful experiment on 14 September 1903, of which military applicability became obvious very soon. Mainly German and French military circles devoted great care to them, but soon all the states - the so-called "*small states*" as well – and their armies too, began to build or buy fighters.

The military spread and the speed of their application were indicated by their usage in 1911 in French, German and Austro-Hungarian "*great practices*" for both reconnaissance and courier services. Its battle application took part no long after it: in 1912 the Italians used air devices in the Tripoli war not only for reconnaissance but for adjustment of fire and bombing as well.

For the question: "*How could these devices be repelled?*" there were two answers those times. One was by the plane itself. The other possible means – not excluding the first one, moreover along with it – was the developing of the artillery (anti-aircraft artillery soon). All European nations dealt with the latter question too, though they put less emphasis on them than on the airplanes.

During World War I it became increasingly common to "*extend warfare into the third dimension.*" During the war aircrafts didn't only fulfill tasks like reconnaissance, courier service, battery control and fire adjustment, but also increasingly bombing troops and objects. Their roles and importance gradually increased and widened. This process didn't stop after the war, it is still a trend.

The air forces dealt with in this article was a part of military power of a nation, which was transformed in territory and name several times during the examined period.

They belonged to the Kingdom of Serbia until 1. December 1918, from that time on to Serbian-Croatian-Slovenian Kingdom, and from 3 October 1929 to the Kingdom of Yugoslavia.

## THE BEGINNINGS OF MILITARY AVIATION IN SERBIA

For the need of the capability in the third dimension, Serbia deployed air forces relatively early, in 1912, when it sent officers to France to learn engineering and it organized an air squad out of French airplanes. This squad was destroyed very early in 1914 due to the lack of resupply in the beginning of WWI.<sup>1</sup> The French reconnaissance squad commanded here was also destroyed in 1915 in retreat.<sup>2</sup> A new own squad was only set up again in 1916. During the break-up of Austro-Hungarian Monarch and the fronts, the Serbian forces acquired a significant quantity of aircrafts, which majority was taken from the Monarchy's stock from the southern airports, primarily from Újvidék<sup>3</sup>, from the remaining aircraft stocks. This way they were able to set up four aircraft squadrons.

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1 Vitéz Szentnémedy Ferenc: Jugoszlávia mint légi hatalom, Magyar Katonai Közlemények 1930/9. p. 882

2 same source

3 We use the names of territories according to how they were used those times or how you can find them in military sources.

| Year | Yugoslavia         |            | Source                         |
|------|--------------------|------------|--------------------------------|
|      | pieces of aircraft | air squads |                                |
| 1912 |                    | 1          | MKK 1930/9. p.882.             |
| 1916 |                    | 1          | MKK 1930/9. p.882.             |
| 1918 |                    | 4          | HL, VKF p.1. 5149/T 1928.      |
| 1919 | 200                |            | MKK 1930/9. p.882.             |
| 1922 |                    | 5          | HL, VKF p.1. 5149/T 1928.      |
| 1922 | 70                 |            | MKK 1930/9. p.883.             |
| 1923 | 70                 | 6          | HL, VKF p.1. 5149/T 1928.      |
| 1925 | 110                |            | MKSZ 1931/5. p.245.            |
| 1926 | 160                |            | HL, VKF VI-p.1. 6236/T 1926.   |
| 1927 | 160                | 11         | HL, VKF p.2. Szn./528 B 1927.  |
| 1927 | 200                | 25         | HL, VKF p.1. 5149/T 1928.      |
| 1928 | 248                |            | HL, VKF p.2. 23693/T 1928.     |
| 1929 | 400                | 25         | HL, VKF p.1. Hr.1999. 1929.    |
| 1930 | 650                | 29         | HL, VKF p.2. 118985/Eln. 1931. |

**1. table.** The squads and the amount of aircrafts of Yugoslavian Air Force<sup>4</sup>

On<sup>1</sup> December 1918 the Serbian-Croatian-Slovenian (SCS) Kingdom was formed, which already owned a already relatively huge amount of air force, though it very early became outworn. In 1919, the air force of SCS consisted of about 200 planes either preyed from the Monarchy or given by the French. These devices became, however, very quickly worn-off, and because of the problems arisen from their need of serving, repairing and obsolescence, they became inapplicable in battle. By 1922, there remained only 60-70 pieces of applicable aircrafts. These times the SCS only owned three very low-power but unquestionably modern aircraft factories, and further nine factories manufacturing aircraft supply materials and devices.

For all these reasons - despite the aviation industry improvements later on - the Yugoslavian Air Force practically needed significant import during the examined period. After the World War I, states not affected by peace treaties - including the SCS as well - faced new military tasks. The construction, operation and continuous modernization of air defense and air forces in peacetime became a current problem. Important areas had to be grounded in theory and implemented in practice.

<sup>4</sup> The resources available to know the amount of air devices and squads often raise doubts. As for example Magyar Katonai Közlemények and Magyar Katonai Szemle often merge the information about battle ('front line') aircraft, training, supply and civilian aircraft.

| NAME            | FUNCTION               | WHERE FROM                 | YEAR       | VMAX (KM/H) | PEAK (M) | MOTOR TYPE AND EFFICIENCY (HP) | D-CO.(KM ) OR FLYING TIME (HOUR) |
|-----------------|------------------------|----------------------------|------------|-------------|----------|--------------------------------|----------------------------------|
| Spad 7          | hunter                 | imported (French)          | 1916       | 191         | 5485     | Hispano 175                    | 2.25 hours                       |
| Spad 20         | hunter                 | imported (French)          | 1921       | 274         | 8500     | Hispano 300                    | 2.5 hours                        |
| Devoitine D1    | hunter                 | imported (French)          | 1923       | 230         | 8500     | Hispano 300                    | 2.5 hours                        |
| Breguet XIX A-2 | reconnaissance. bomber | by license, national       | 1923       | 240         | 8500     | Lorraine 400                   | 3 hours                          |
| Breguet XIX B-2 | bomber                 | by license, national       | 1923       | 215         | 8000     | Renault 450                    | 3 hours                          |
| Devoitine D9    | hunter                 | imported (French)          | 1924       | 228         | 8000     | Bristol 400                    | 2.5 hours                        |
| Potez XXV       | reconnaissance. bomber | by license, national       | 1924       | 230         | 7200     | Lorraine 450                   | 2.5 hours                        |
| Junker G-24     | bomber                 | imported (German)          | 1925       | 175         | 3800     | Junkers 690                    |                                  |
| Fokker T9       | bomber                 | imported (Dutch)           | after 1925 | 208         |          | 3x365                          | 1200 kms                         |
| Fizier          | reconnaissance         | national                   | 1926       | 192         | 6000     | Maybach 260                    |                                  |
| Ikarus I.M.     | reconnaissance         | national                   | 1926       | 200         | 6500     | Liberty 400                    |                                  |
| Ikarus I.O.M.   | reconnaissance         | national                   | 1927       | 170         | 4500     | Liberty 375                    |                                  |
| BH-33           | hunter                 | imported (Czechoslovakian) | 1927       | 270         | 9500     | Bristol 420                    |                                  |

**2. table.** The important types of A/C of the Yugoslavian Air Force<sup>5</sup>

## THE ORGANIZATIONS OF YUGOSLAVIAN/SOUTHERN SLAVONIC AIR FORCE IN THE TWENTIES

By 1922, air force squads were increased to five, and from 1924 they began to purposefully build out the air force, and two aircraft regiments were set up.<sup>6</sup> According to plans they intended to make as many air force units as they had on land, which meant five.

From 1925 they started to implement their own production of aircrafts, though, then they only equipped their flying schools with Icarus products. In 1927, the 3rd aircraft regiment was founded and the already existing two air units were also filled up, especially with foreign supplies. 400-450 aircrafts were purchased mainly from French suppliers, and by French military equipment loan. By the end of the twenties, the SCS Air Force –according to the battle order - owned seven aircraft regiments, but not all of them were actually formed or

<sup>5</sup> Reptilógép Enciklopédia. Gemini kiadó. Budapest 1992.

Angelucci. Enzo: The Rand McNally Encyclopedia of Military Aircraft. 1914 to the Present. Crescent Books New York 1981.

Munson Kenneth: A hadviselő felek valamennyi reptilógépe. Műszaki Kiadó. Budapest 1994.

TASCENBUCH DER LUFTFLOTTE. V. JAHRGANG. Herausgegeben von Dr. Ing. W. von Langsdorf. 1926.

own work by the sources of. HL. VKF 1923-1930

<sup>6</sup> Hadtörténeti Levéltár (HL), VKF p.1. 5149/T 1928.

stocked up.<sup>7</sup> They consisted of 29 air squads with about 650 military (reconnaissance, fighter, bomber, school) aircrafts.<sup>8</sup>

The actual number of aircrafts is really hard to determine on the basis of available resources. *Annuaire Militaire*, which can be considered relatively reliable, often published two or three years old data, *Magyar Katonai Közlemények* (Hungarian Military Communications) and *Magyar Katonai Szemle* (Hungarian Military Review) often merged the information about battle ("*front line*") aircrafts with those for training, spare and civilian means. Civilian means, of course were also applicable for military purposes, but not with the ability of immediate implementation, and many of them were less effective as well. The other complicating factor is that reconnaissance aircrafts were often recorded as fighters at the same time as well in the twenties. These devices were generally able to carry bombs, but only with very small loads. Therefore their effectiveness in bombing was questionable.

In 1930, the Air Force staff consisted of more than 600 officers, 700 non-commissioned officers and 6000 crew soldiers.<sup>9</sup>

The military had about 1200 trained pilots. The settlements of the regiments were the following:

- 1st regiment in Újvidék (Novi Sad) (5 reconnaissance and 2 bomber squads);
- 2nd regiment in Sarajevo (4 reconnaissance and 1 bomber squads);
- 3rd regiment in Skopje (3 reconnaissance and 1 fighter squads);
- 4<sup>th</sup> regiment in Zagreb (3 1 reconnaissance and 1 fighter squads);
- 5<sup>th</sup> regiment in Nis (was not filled up);
- 6<sup>th</sup> regiment in Ljubljana (2 reconnaissance and 1 fighter squads);
- 7<sup>th</sup> regiment in Mostar (2 bomber squads).<sup>10</sup>

Two more flying schools belonged to them with their training air squads and also 13 airports (Novi Sad, Zagreb, Sarajevo, Mostar, Zemun, Skopje, Kraljevo, Bitolj, Osijek, Witch, Marburg, Pancevo and Podgorica).<sup>11</sup> The flying water group, which contained 3 squads (Kotor, Susak, Sebenico) and about 60 flying devices, was also a part of the air force.

## AIRCRAFT IMPORT AND AIRCRAFT-INDUSTRIAL DEVELOPMENTS IN THE TWENTIES

In the early twenties primarily the French (as we already mentioned, until 1927 about 400-450 pieces), the British and the Czechoslovakian delivered fighter aircrafts to Yugoslavia. From 1923, the latter sold a wide variety of munition to our southern neighbour.<sup>12</sup> Until the end of the decade, the French exported 546, the Czechoslovakian 60, the Dutch 50, the Swiss 3 aircrafts to Yugoslavia.<sup>13</sup> The military mainly acquired DEVOITINE, BREGUET, and SPAD hunters, BREGUET 19A scouts and BREGUET 19B bombers.

From 1925, the national aircraft- industry also got powerful support. ICARUS factory founded in 1923 was able to satisfy the military's needs for school machines from 1925, then, from 1928 it started the production of its own construction, the FIZIER bomber.<sup>14</sup> Its annual capacity was 150-200 aircrafts. In 1929, the Kraljevo National Aircraft Factory's (which was

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7 HL, VKF p.2. 19541/T 1929

8 We concluded the probable amount of air squads and aircraft in Table1.

9 *Magyar Katonai Szemle* (MKSZ) 1931/9. p.210.

10 HL, VKF. p.2. 19541/T 1929. This source is unreliable, because the 1930/2 volume of *Rivista Aeronautica* provides different data about the 1st and 4th regiments.

11 HL, VKF p.2. 23693/T 1928. and HL, VKF p.2. 118161/Eln. 1931

12 MKSZ 1933/8. *Hírek* p.264–265.

13 HL, VKF p.2. 118985/Eln. 1931.

14 We listed the most common types in Table2.

founded in 1926) product made by French license, the BREGUET came out.<sup>15</sup> The factory was built between 1926 and 1928, with Czechoslovakian assistance. It had a 250 aircrafts per year maximum capacity. The production of "Vlajkovics" (from 1926) and "Rogozsarszki" (from 1923) factories manufacturing school machines was no significant with a maximum of 50-50 aircrafts per year.<sup>16</sup> On 11 August 1928 in Rakovica a major aircraft factory opened, which had an annual capacity of 150 pieces.<sup>17</sup> In the end of the twenties the Yugoslavians ordered further 103 aircrafts from the French and the Czechoslovakians to modernize and supply their own air force.<sup>18</sup>

### THE BUDGET FRAMEWORK OF THE AIR FORCE

The Yugoslavian political and military leadership always devoted significant resources to build out, maintain, and modernize their air force. In the twenties – from the Army's budget – they spent an increasing proportion and amount on aircraft design, manufacture, maintenance of existing structures and expansion. The continuous support of resources grew dramatically in 1926. This may be explained as follows: in 1927 they formed the 3rd air regiment, and the existing two air units were also filled.

The global economic crisis also affected negatively the development of the army, but it didn't affect significantly the air force because of the previous improvements and modernizations. Although the data of International Military Yearbook sometimes contradict even with themselves, - in the given and actually spent amount of money in 1929 and 1930 - the differences are not significant.

| Years   | Military spending (millions of Dinar) | On air force (millions of Dinar) | %     | Source                                |
|---------|---------------------------------------|----------------------------------|-------|---------------------------------------|
| 1922-23 | 1127.803                              | 25.6                             | 2.27  | Annuaire Militaire 1926th Geneva 1926 |
| 1924-25 | 1956.001                              | 39.77                            | 2.03  | Annuaire Militaire 1926th Geneva 1926 |
| 1926-27 | 1127.803                              | 116.27                           | 10.31 | Annuaire Militaire 1927th Geneva 1927 |
| 1927-28 | 2398.6                                | 146.14                           | 6.09  | Annuaire Militaire. Geneva 1931       |
| 1928-29 | 2428.6                                | 166.528                          | 6.85  | Annuaire Militaire. Geneva 1931       |
| 1929-30 | 2428.6                                | 178.865                          | 7.36  | Annuaire Militaire. Geneva 1931       |
| 1930-31 | 3081.9                                | 238.7                            | 7.74  | Annuaire Militaire 1932nd Geneva 1932 |

3. table.

<sup>15</sup> HL, VKF p.2. 118985/Eln. 1931

<sup>16</sup> HL, VKF p.1. 5149/T 1928.

<sup>17</sup> HL, VKF p.2. 23693/T 1928.

<sup>18</sup> same source

## CONCLUSION

During the examined period the Yugoslavian air force represented a rational size, well-organized, and continuously maintained power considering the possibilities and needs of the country. They solved their problems coming from technical level, manufacturing possibilities and capabilities by purchasing assets and licenses from abroad.

Reading the analyses of the examined era, it becomes clear, and the principle could also still be considered to be true, that besides owning technical equipment (aircrafts, “*leadership support*” systems, etc.) it was also essential for successfully applying air force to develop a new way of thinking and a complex approach to deal with air military. We think that Yugoslavia was on the right way to create at once its technical, infrastructural conditions and the right mental state for the success of its air force in military.

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