



DOA 1916 T

German East Africa Emergency Coinage Struck at Tabora in 1916 A die Catalogue

Kees Uitenbroek

1st edition
2nd edition 23-8-2012
3rd edition 17-3-2017

general introduction

23-8-2011

Welcome

Welcome to *DOA 1916 T, German East Africa Emergency Coinage Struck at Tabora in 1916, a Die Catalogue*.
For this third edition *DOA 1916 T* has been added the original title, to be able to make it shorter and refer to it as the *DOA 1916 T Die Catalogue* or simply *DOA 1916 T.*
This change was prompted by the change in format from a catalogue on CD, with lots of maps and submaps to accommodate any amount of files, to a catalogue easily downloadable from internet. This new version consist of single pdf files with titles starting with DOA 1916 T, followed by its subject.

Of course you can't make a catalogue without the help of others and I wish to express my special gratitude for the help and support of Anneke Moen, Bas van Heijst, Ceren Kaya, Dale Bain, Eberhard Mücke, Elke Bannicke, Florian Kreul, Gerd Löffler, Guy Franquinet, Hans Zacharias, Jeggy, Johan Nieuwland, Martin Weller, Mathilde Leduc, Namibia, Nancy Vanderlinden, Pavel Kartashov, Peter Hammer, Peter Neugebauer, Peter Schlobach, Ralf Müller, Stefan Dekker, Stephan Söllner, Tobias Honscha, Vladimr Belyaev, Vladimir Suchy, Werner Kinateder and all those who gave me permission to use their pictures or did write all these articles and did the research that made this catalogue possible.

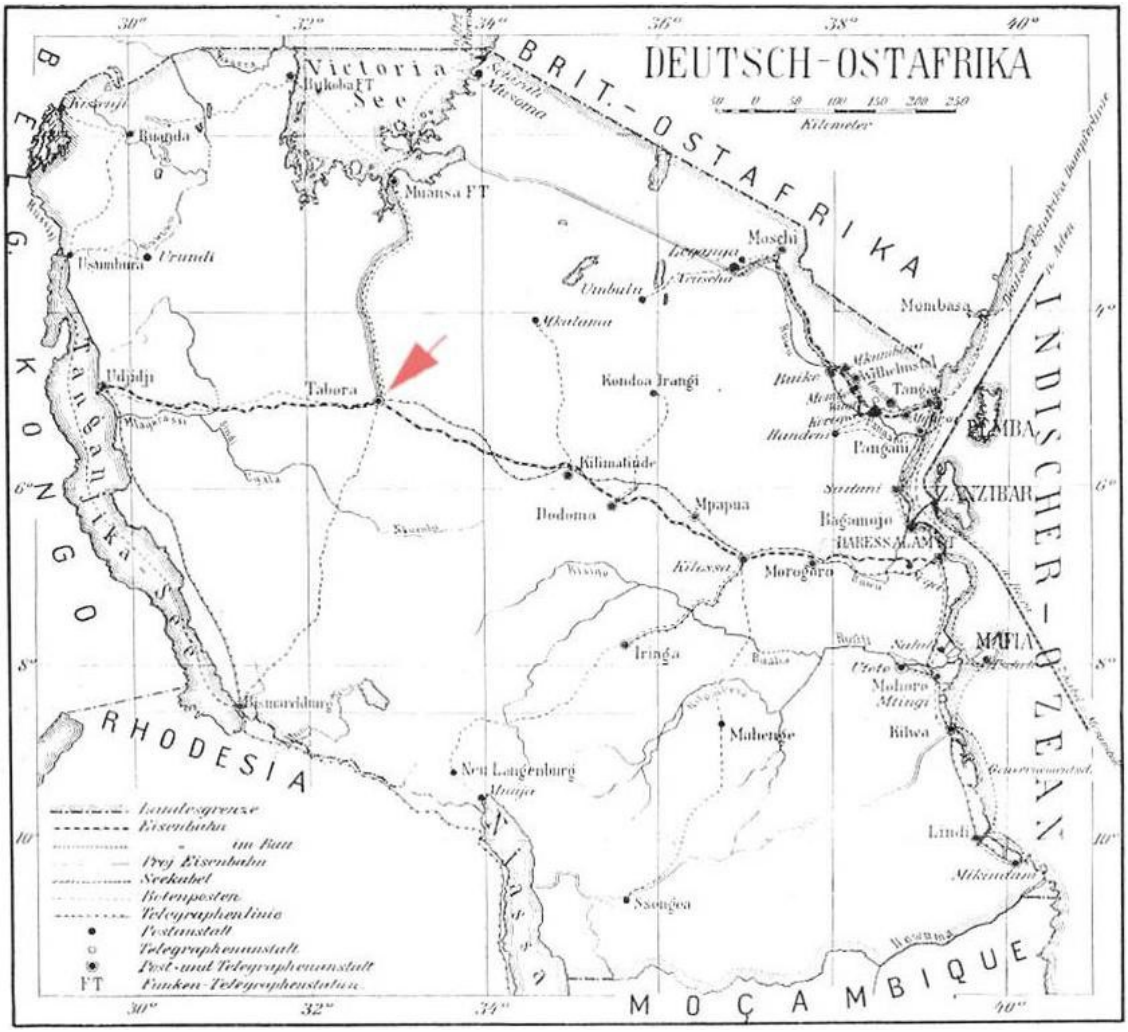
Kees Uitenbroek, Amsterdam, Holland, March 2017

General introduction

At the end of the 19th century the then powerful nations scrambled for the last “unclaimed” territories of the world. That is, unclaimed by what they regarded as their peers, those strong enough to withstand them if challenged.

Germany ended up with Togo, Cameroon, German South-West Africa (Namibia), German East Africa, German New Guinea, Samoa and a concession in China, thus becoming the third empire on which the sun never set.

German East Africa consisted of what are now Tanzania (without Zanzibar), Burundi and Rwanda, a territory of 995,000 square kilometres, with in 1914 an estimated population of 7,750,000, including 5,300 Europeans of which were 4,100 German.



Postal routes in German East Africa, Koloniallexikon. More maps use links at # 69955

In February 1914 the central railway starting from Dar es Salaam had reached Lake Tanganjika. In the north the Usambara railway connected Tanga with Moschi near the Kilimanjaro. Beyond these lines transport inland was on the backs and heads of men.

Until the beginning of the 20th century coins were not accepted in remote parts of the country and payment had to be made in goods or beads of specific colours. The first banknotes were issued on 15 June 1905.

The Great War did not leave Africa alone. Within three weeks both sides had taken action.[1] On 8 August the British bombarded Dar es Salaam from the sea, which prompted the local government to shift the seat of their administration for safety reasons to Tabora in the centre of the colony.

The first major British attack in the beginning of November 1914 ended in disaster. Only in March 1916 had they built up enough forces to give it a second try, aided at the end of April by Belgian troops advancing from Congo. This time their advantage was big enough to make the Germans slowly retreat. On 1 August the central railroad was reached, thus cutting all communications between Tabora and the coast. On 19 September Tabora was taken.

After this, the offensive came to a slowdown and the Germans could keep up their resistance in the south-eastern parts of the colony until eventually they had to cross into Mozambique in November 1917. What followed was a long march halfway down that country and up again, living from what they could capture, ending in the north of then Rhodesia, still unbeaten at the end of war.

The German naval presence in East Africa amounted to the light cruiser SMS Königsberg.[2] After her role in war ended on 11 July 1915, she was stripped of all valuable metal, which eventually would reach also the melting pots of the Tabora mint. The guns were re-directed for use in the land war and never ended up in the melting pots of Tabora, as romantics would have it. But that the 20-heller you are holding in your hand was formerly the captain's cabin's doorknob is not impossible.

In troubled times people try to save their wealth, giving preference to the secure above the insecure. So coins disappeared very soon below mattresses. The printing of new banknotes, which started in March 1915, was useful for preventing shortages of money for large-scale transactions, but was of little help if you wanted to buy a chicken or some eggs. The first 1-rupie notes are dated 1 September 1915, but this still was equivalent to a day's wages for a local soldier. Local mistrust of paper money did not help war effort; to get payment accepted coins were needed. This led to the opening of a mint in Tabora, which produced the first 20 heller coins February 1916.

Locally produced notes and coins were demonetised directly by the occupying forces, so they were legal tender for only a very short time. This does not necessarily mean they lost their function in local markets. That may be one of the reasons that we find some of the coins in very worn condition. Another explanation may be that some coins were carried in boxes through rough terrain for over a thousand of miles without ever being put into circulation. Even mint-condition coins might look as if they have been used for ages, just because of the quality of the dies they were produced with.

It is not an uncommon phenomenon that, when you see a dealer offering a couple of coins, these coins stem from the same pair of dies. This suggests they must have "stuck together" all the time, being used in only a few transactions in a limited space of time.

Remembering how long it took for the first Irish or Finnish euro coins to end up in my Dutch wallet, looking at the map and remembering how difficult and slow travel was in Tanzania even in the1980s, it must be clear that it would be a near miracle for a coin sent from Tabora to Rwanda to ever meet again with a coin send to Tanga in the north-east.

1

See further http://en.wikipedia.org/wiki/East_African_Campaign_(World_War_I) .

[2] See http://www.worldwar1gallery.com/colonies/africa/10362-8_5.html#the_navy_and_its_work .

If coins of all dies used are available to the eBay world, it is thanks to travelling coin dealers in Tanzania, who bought them as scrap metal. What also helped was the fact that during the 70s and 80s of last century it was not allowed to export money from Tanzania. So many people had to look around for other ways to get their earnings out of the country, coins being one of them. That is how my lot arrived in Holland in the luggage of a Dutch missionary.

There it passed through the hands of a stamp dealer, who will have sold some coins to his customers. When he died what was left came up for auction, where I got it. As we do not know what the dealer sold, no conclusions can be attached to relative scarcity of types in this lot.

Internet links to Zeno.ru - Special projects - German colonies
http://www.zeno.ru/showgallery.php?cat=7136

Extensive use is made in this catalogue of pictures in Zeno Oriental Coin Database. These links can be recognised by # followed by a number. If these links do not work, the pictures can be reached by going to the Zeno.ru website and pasting or typing the number in the search function at the top left of the page. The link is to a page with a mid-sized picture and a description. Clicking on the picture in this page will get you the full-sized image.

Primary sources

Knowledge of Tabora emergency coinage is based primarily on two sources. The first is a report written July 1917 by Erich Krenkel for the Colonial Office when Krenkel was interned in Switzerland.[3] In 1918 an article by Krenkel was published in *Wirtschaftsdient.* This contains some extra information which is printed in red below. The second source is an article in *Metall und Erz*, April 1918, written by F. Schumacher.[4] Copies of the last two can be downloaded at # 110479 , 110480 and 110484

Krenkel reports +/-:

> In 1915 coins got scarcer and scarcer, partly because of high demand by armed forces for cash payment, partly because of hoarding. The introduction of banknotes did ease things for Europeans and larger native traders. Other locals though very much disliked paper money, they didn't know what to do with it. I saw Waha, who were paid in Kogoma with banknotes throw them in Lake Tangenjika, as being worthless to them. Natives who couldn't read were told 1-rupie notes were blue and then the next series would be yellow. Keen traders would buy 10 to 15 1-rupie notes for 2 or 3 silver rupies.
>
> Because of this authorities feared the worst for the willingness of local population to stay calm and to keep supporting them. Everything urged for small change in the form of coins.
>
> In December 1915 the governor called me from Kigoma to Tabora for deliberations on the possibility of striking coins. After a short stocktaking of available materials and machines, I deemed this possible. At a meeting at the end of December it was decided to strike 20 and 5 heller coins and possibly later also gold coins.
>
> As with everything technical in Africa, to build a mint out of nothing was difficult and time-consuming. In February 1916 large-scale production could be started,

[3] On Krenkel, see http://www.uni-leipzig.de/unigeschichte/professorenkatalog/leipzig/Krenkel_254.pdf .
[4] http://tu-freiberg.de/ze/archiv/biograph/schumacher.html .

which took place in a special room of the workshops of the East African Railway Company.

Co-operating at getting the mint working were, in the first place, the foremen of the railway workshops and, at a later stage, the geologist F. Schumacher, who was called in from Sekenke.

1. Strikeable materials

Investigation revealed that there was enough material available to strike half a million of coins, first of all large quantities of brass and copper.

2. Strikeable alloy

Finding a strikeable alloy did take a lot of experimenting. The alloy should sound metallic, be not too hard to be struck by the machines which had been built for totally different purposes and, as stipulated by the governor, have a light colour. After several dozens of trials a satisfying alloy was found. Its colour was yellow-brass and it consisted of brass, to which were added small amounts of copper, aluminium and lead to regulate fusibility, colour and hardness.

3. Production of the flans

a) Melting of the material
The metal was melted in graphite melting pots that came from the gold mining company in Sekenke. The original self-produced melting pots didn't last for more than one or two loads. First, the small ovens of the railway's workshops were used, but their production was too low and they got blocked by slag because the quality of locally produced coke was not exactly excellent. Therefore, an oven of our own was built to a design by Schumacher, with two melting chambers and blown-in air, which worked perfectly.

b) Casting of coin-bars
Molten metal was poured into casting-moulds. Trials with separately cast flans and sand moulds didn't satisfy.
30-40-centimetre-long and a-few-centimetre-wide steel forms, which consisted of two equal parts, did function well though.
After they had been heated in a separate oven until they were red hot, they were put on a table and filled. Well heated, they filled to the bottom, if not this failed. After cooling, the coin bars were struck out and the forms were heated again. The pouring job was very hard work for Europeans and was later done by Africans.

c) Rolling of coin bars
Coin bars couldn't be poured directly at the desired thickness, so they had to pass several times through a rolling machine. A strong rubber press could function as rolling machine, after the ribs on its rolls had been removed in a process of grinding and polishing taking several days,. This machine was driven by steam engine, as working by hand didn't work.

d) Cutting of flans
Flans were punched out of the bars by a machine.

e) Cleaning the flans
To remove the sharp edges that resulted from punching and to polish the surface, the flans were put in a rotating container with sand, ashes and pieces of leather for some hours.

f) Thermal softening

The flans were heated to loosen the accumulated hardness. After this flans were cleaned and sorted.

4. Striking of the coins

For striking steel dies were used. Finding a steel suitable for engraving took a lot of time and only after many experiments a steel that was not too soft for striking or too hard for engraving was found. Dies had to be softened and hardened again in different ways. Engraving & design of 20 heller was made by government servant Wolf and the remaining by Indian gold-workers, who were very competent. Engraving tools had to be made in Tabora itself.

First dies for 20-heller were cut, then for 5-heller and last those for gold. Trial dies for ½-rupie and 1-heller coins were also cut, some zinc pattern 1 hellers were struck. These original dies were used to make the production dies, to ward off possible work accidents.

The positive die was pressed in the production die by a hydraulic press. The production dies were built into a steam-driven cutting machine. Conversion of this machine required tremendous effort, because it should work faultlessly to get a somewhat even result. The foremen of the railway company, like engineer Wendler, did valuable work. Great care had to be taken while putting the flans under the, at short intervals, rising and falling upper die. To avoid accidents tools were developed which are not described.

After being struck the coins were controlled and handed over to government.

First issue of 20 hellers has small crown and pointed-feet-L's (Jaeger 727, Krause B-B), Second came big crown and curved-feet-L's (Jaeger 724, Krause A-C/A).
The small denominations (? 5 hellers) were also struck in Lulanguru.

So far the technical part of striking coinage.

Regulations regarding striking of brass coins were published February 1916. Because the report's writer was recalled by the army to his former post in Kigoma in March 1916, he could not report specifically on the development of the mint after this moment. The mint functioned until July, then had to stop because of advancing Belgians. The coining of gold coins, which he[5] initiated, took place under supervision of Dr. Schumacher, so no further information can be given.

About 250,000 rupies worth of gold coins were produced. But because of certain abuses linked with the issue, they did not contribute to strengthening the currency circulation and must be considered memorial coins. No indication can be given about the amount of small coins.

As soon as all parts of the mint were working well, in the beginning 500 to 600 coins per hour could be made with one machine. So much is certain that the new small change spread very fast over the colony and was accepted everywhere without problems by locals.

Vitzau, Schweitz, 10.7.17
Gez. Dr. iur. et phil. Erich Krenkel, Privatdozent an der Universität Leipzig

To build a functioning mint from scrap in seven weeks in these circumstances is a near miracle, but must have seemed like an eternity for the authorities waiting in need of coins.

[5] It is difficult to say if the second he indicates the writer = Krenkel, or Schumacher – KU.

In May 1918 an article was published in *Der Berliner Münzblätter*, based on information from Erich Krenkel. Initial A is a mistake. # 92690

Schumacher in his article in *Metall und Erz* tells much the same story. In this résumé I will only mention these parts where his story differs from or adds to Krenkel's.

> Local trade came to a stop because of shortage of goods, so money didn't circulate anymore. Large amounts ended up in the hands of Indian and local tradesmen. Locals who were used to beautiful silver coins disliked the interim banknotes, to an extent that they stopped bringing their produce to the markets.
>
> In December 1915 preparations started for minting 20- and 5-heller coins. The diameter of the 20-hellers was 28 mm, thickness circa 2 mm and weight +/- 11 grams. The diameter of the 5-hellers is 22 mm, thickness circa 1.5 mm and weight +/- 5 grams. Brass was chosen as the material, because it is easy to pour and work and larger quantities were available then that of any other metal. Mostly scrap metal was used, mainly used-cartridges from the army and scrap salvaged from ships. Work was executed by the railway company's workshops in Tabora under supervision of government.
>
> As most of the material available didn't have enough thickness, the largest part of the material had to be melted and poured into bars. Melting was done in an oven into which fitted four big (capacity 30 kg) or eight smaller melting-pots (20 kg).
>
> The melting-pots, which came from the Sekenke gold mines, were in high demand. Being already well used and getting fast affected by the alloy, they didn't last long. Experiments with local materials to make melting-pots failed.
>
> A load of about 30 kg would contain 24 kg scrap brass, 6 kg copper, 0,51 kg Lead and 0,17 kg aluminium, together 30,68 kg. When the time came that melting-pots ran out, recourse was taken to the quite large stocks of brass plates and pipes still available in the colony. As these ran out copper plates and pipes were also used. 5-heller flans were only produced directly from brass plate.

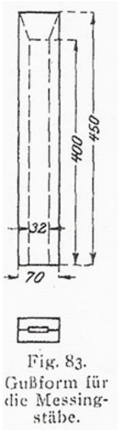


Fig. 83. Gußform für die Messingstäbe.

Casting form

Monat	Zwanzigheller		Fünfheller		Gesamtsumme
	Stück	Rupien	Stück	Rupien	Rupien
Febr. 1916	74 800	14 960	8 800	440	15 400
März „	148 700	29 740	6 200	310	30 050
April „	214 500	42 900	12 800	640	43 540
Mai „	302 000	60 400	34 200	1 710	62 110
Juni „	362 500	72 500	16 000	800	73 300
Juli „	448 000	89 600	8 000	400	90 000
August „	72 500	14 500	191 000	9 550	24 050
Sept. „	11 700	2 340	25 000	1 250	3 590
bis 5. IX. zusammen	1 634 700	326 940	302 000	15 100	342 040

Production data per month



Fig. 84. Prägeapparatur für Fünfhellerstücke.

5-heller special

> Of the 20-heller coins about 1,000,000 (60%) were made from locally melted brass. A little more then half of the rest (about 330,000) were made out of copper plate and pipe. The total number of brass coins was +/- 1,300,000.
>
> A machine, that could punch holes at one side and cut steel bars at the other, was transformed into a coin-striking machine by fixing die-holders to the cutting

part. Insufficient grip of the upper part caused the die to move sideways while striking and exerted an uneven pressure on the flans. For this reason dies didn't last long, they seldom produced more then 10,000 coins a piece.

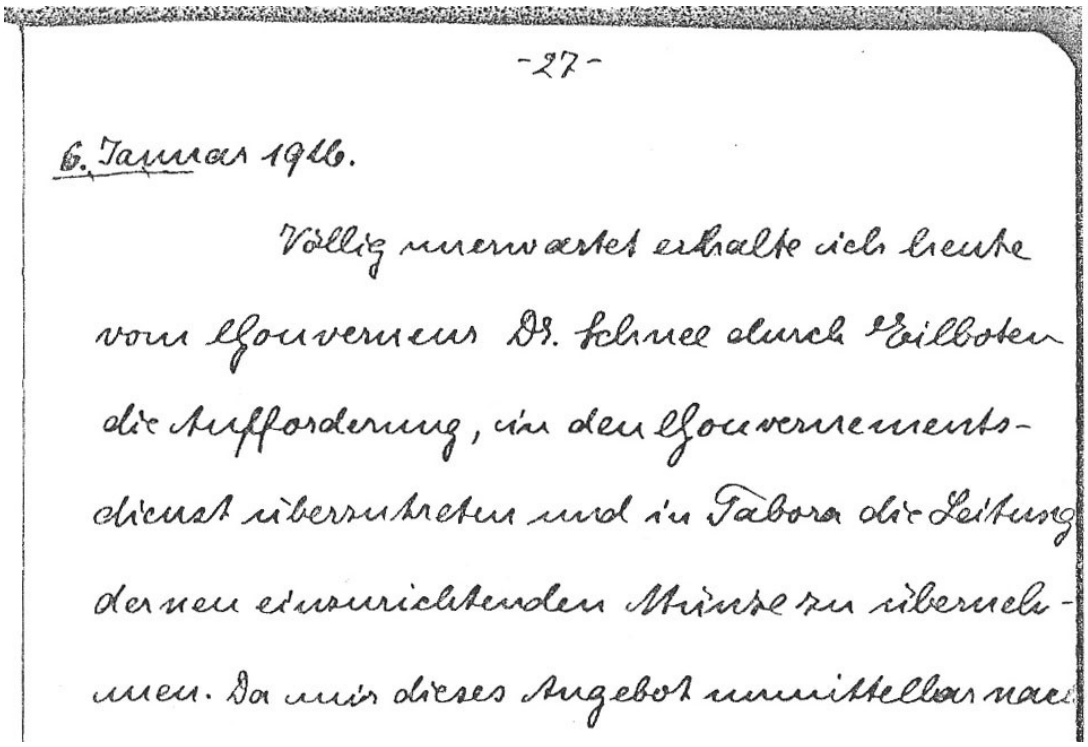
Coins were struck in a round ring, which was called "glasses", which was used to put flans in the machine by hand.[6] First, there was only one machine, but at the beginning of March a second one was installed. Daily production was raised from 5,000 coins in the first months to between 10,000 and 20,000 in later months.

Part of the production of 5-heller coins was realised on another, small man-powered, hydraulic press, in which five pairs of dies were built in, as shown in the picture above. Slowness was thus partly compensated by striking five coins at a time. All work in the mint was done by locals under supervision of two whites.

After, in the last days of July, communications with the army in the east were cut, production of the mint slowed down. The mint was closed at the beginning of September, when the Belgians were only 25 km from Tabora.

Schumacher then proceeds to the striking of the gold coins. This part is described in the 15-rupien part of this catalogue.

To be able to give figures of the monthly output of the mint, Schumacher must have made notes somewhere and brought these back home.
The Bergbaumuseum (mining museum) in Bochum has the manuscript of a *Kriegstagebuch (war diary) 1914-1917* by Schumacher. Alas this is not the original diary, but a later version, probably meant for publication. No more then 7 pages relate to the mint.



-27-

6. Januar 1916.

Völlig unerwartet erhalte ich heute vom Gouverneur Dr. Schnee durch Eilboten die Aufforderung, in den Gouvernementsdienst überzutreten und in Tabora die Leitung der neu einzurichtenden Münze zu übernehmen. Da mir dieses Angebot unmittelbar nach

- 6 January 1916 he gets a message from the governor wherein he is asked to come from Sekenke to Tabora to head the mint. With a caravan of 150 people, carrying more than 100 loads of metal, smelting pots and other material he arrives middle of January in Tabora.

[6] This ring was bigger then the coins, so numismatically they were not "struck in a ring" – KU.

> (In a second manuscript, also in the museum, "*From my Life*", he changed "the mint " in "head the mint" into "a gold-mint")
> - End of January 1916 the first brass coin had been produced. Larger part of the coins were claimed and gotten by the military for their expenses.
> - 15 April 1916 Schumacher submits the first 100 gold coins to the governor.
> - 5 September 1916 he takes in Lulanguru, after the last gold coins have been struck, the dies and other important parts from the machinery and buries them in a safe spot. He then brings the coins and the un-minted gold to Tabora.

Maybe Schumacher could not tell more because his original diary of this period got lost. From middle of September his Kriegstagebuch gets really detailed, so maybe that part was still available to him.

Ernst Balke[7] describes the distribution of tasks as follows:
Responsible for the production of gold coins: Dr. Friedrich Schumacher.
Responsible for the production of 5 & 20-heller coins: Dr. A. Krenkel.
Responsible for the "technische Leitung": "Oberwerkmeister" Bergé from the German-East African Railway Company.
German can be confusing, but I would distil Bergé was general work floor manager of the mint and responsible on a day to day basis for what was going on. Thus Krenkel could return to the army as soon as the mint was running smoothly and Schumacher, who because of malaria was not deemed fit for service, was made responsible of the gold mint, where a "European" took care of all day supervision.
The initial A for Krenkel is a mistake, already made in Berliner Münzblätter.
In a note to the above description Balke refers to a letter from Schumacher to Jaeger, the compiler of the famous catalogue, which would confirm this labour distribution.
In a letter from Wolfgang Müller to Horace Haberstroh, both avid DOA collectors, Müller tells he had met Schumacher and asked him some questions on the emergency coinage. Schumacher had answered he did know nothing on that, as only the gold coins had been his work.

In the light of Schumacher's article in *Metall und Erz* this may seem a very strong understatement, but it might indicate that indeed he couldn't answer specific questions, as he was only directly involved in the setting up of the "small change" mint and had no information on what happened there later on.

Governor Heinrich Schnee in his *Deutsch-Ostafrika im Weltkriege* (Leipzig, 1919), also relates information about the mint:

> Chief foreman Bergé's gets special merit in relation to technical aspects of the work.
>
> Because, in the beginning, no usable rolling machine was available, experiments were made with pouring metal directly into coin-moulds. After the problem of rolling was solved it was decided to strike the coins, since this was a much faster method.
>
> Government employee Wolf designed and cut the original 20-heller dies. The other dies were made by an Indian goldsmith. 15-rupien were designed by R. Vogt

[7] *Die Notmünzen von "Deutsch-Ostafrika"* Moneytrend nr. 3 / 1988

> After the war 20-heller coins were sold in Dar es Salaam market as curiosities for face value, the scarcer 5-heller did for 50-heller. Gold 15-rupien coins brought 50 rupees.

No examples of cast 20-heller are known to me. Perhaps cast flans are confused by Schnee with coins or they were remelted.

1973 Schumacher tells[8] how he is asked by the governor if he could make coins. On his objection that he didn't know anything about coining, the governor would have pointed at the large encyclopaedia behind his desk saying: here you'll find everything you need.
It may be a romantic version of what happened and it may not have been Schumacher himself who was told so, as he arrived rather late on the scene, but the truth may be that that was indeed all the information they got on how to mint coins.
The lemma on how to make coins in Meyers Grosses Konversations-Lexikon 1905 you'll find Meyers-1905

Peter Schlobach states[9] that 1921, some documents, buried in shell cases in 1916, were found in Tabora. In 1930 these were exchanged with Belgium.
Probably these documents were seen & read by the person who did write on currency in Gerald F. Sayers's 1930 Tanganyika Handbook, as this contains information not to be found in other sources.
Untill now the Belgian Archives did not render but the Gold Coin Account Register of the Tabora mint which is analysed in the part DOA 1916 T, 15 Rupien part B of this catalogue

Catalogue parts

Besides this intoduction the catalogue consists of four main parts, one for each of the four denominations of which examples are known to exist, that is 1 heller, 5 heller, 20 Heller and 15 Rupien. Some of these parts are again subdivided in separate files. New files may be added in the future.

The March 2017 3rd edition consists of the files:
DOA 1916 T, - general introduction (3rd ed.)
DOA 1916 T, 1 heller pattern (3rd ed.)
DOA 1916 T, 5 heller part A, introduction (3rd ed.)
DOA 1916 T, 5 heller part B, die catalogue (3rd ed.)
DOA 1916 T, 5 heller part D, Thick and thin 5 heller DOA 1916
DOA 1916 T, 5 heller part E, weight distribution
DOA 1916 T, 20 heller part A, introduction (3rd ed.)
DOA 1916 T, 20 heller part B, die catalogue, Zeno die order (3rd ed.)
DOA 1916 T, 20 heller part C, die catalogue, alphabetical order H-side (3rd ed.)
DOA 1916 T, 20 heller part D, die catalogue, alphabetical order D-side (3rd ed.)
DOA 1916 T, 20 heller part E, die catalogue, HA-DB and DA-HB die combinations (3rd ed.)
DOA 1916 T, 20 heller part H, 20 heller, Tabora-brass, prefab-brass & copper
DOA 1916 T, 20 heller part I, coin production per die combination (3rd ed.)
DOA 1916 T, 15 rupien part A, die catalogue (3rd ed.)
DOA 1916 T, 15 rupien part B, The gold coin account register of the Tabora mint.
DOA 1916 T, extra A, The Royal Museum for Central Africa's collection of 20- & 5-heller coins.

[8] *Der Goldschatz von Tabora*, Geldgeschichtlichen Nachrichten 1-1973
[9] *Deutsche Kolonien. Teil 9: Die Buntmetall-Notprägung zu Tabora in der Kolonie Deutsch-Ostafrika im Jahr 1916*, MoneyTrend 7-8/ 2008, p. 151

Newsletter

This catalogue is a work in progress, files will be updated or added if new material becomes available. If you like to be kept informed you can subscribe to the free newsletter at 20heller@ptbvhrokerspartij.nl
If you have specific questions you can also send them there.

Links & literature

Websites covering German colonial banknotes, coins & tokens

http://www.zeno.ru/showgallery.php?cat=7136
http://www.kolonialgeld.de
http://www.emuenzen.de
http://www.numismatik-cafe.at
http://www.numismatikforum.de

Some reading for Tabora emergency coin collectors

For copies of unlinked articles ask 20heller@ptbvhrokerspartij.nl

Erich Krenkel, Bericht über die Einrichtung einer Gouvernementsmünze in Tabora, Vitznau 10-7-1917, Bundesarchiv Berlin, Barch, R2/41879 (same information as in Notenpresse und Kriegsmünze mentioned below)
NN, based on information from article below, Kriegsgeld von Deutsch Ostafrika, Berliner Münzblätter, Mai 1918 # 92690
Erich Krenkel, Notenpresse und Kriegsmünze in Deutsch-Ostafrika, in Wirtschaftsdienst, Deutscher Volkswirt, Nr. 11,1918 # 110479 & 110480
Friedrich Schumacher, Die Prägung von Kriegsmünzen in Deutsch-Ostafrika, Metall und Erz, Heft 7, 8 April 1918 # 110484
Friedrich Schumacher, Die deutsch-ostafrikanischen Kriegsmünzen, Koloniale Rundschau, Berlin, 10 Jg. 1918, pages 227-233 # 105620
Friedrich Schumacher, Die Prägung von kriegsmünzen in Deutsch-Ostafrika, Deutsches Kolonialblatt 30 (1/2), February 1919, pages 4-9
Friedrich Schumacher, Die Prägung von Kriegsmünzen im ehemaligen DOA, Berichte für Kolonialbriefmarkensammler, 1960
Friedrich Schumacher, Der Goldschatz von Tabora im ehemaligen Deutsch- Ostafrika, Geldgeschichtliche Nachrichten, Nr. 33, January 1973
Friedrich Schumacher, Manuscripts in Bergbaumuseum Bochum, Germany, ND (1970's, contains hardly no new information on the coinage)
Heinrich Schnee, Deutsch-Ostafrika im Weltkriege, Quelle & Meyer, Leipzig, 1919, pages 280-291 # 102879 & 102880
Heinrich Schnee, Decrees in Amtlicher Anzeiger (Official Gazette) dd 14-1, 1-2 # 112826 , 28-4 # 112824 , 2-6 # 112825 & 14-7-1916 # 112676
Peter Schlobach, Das deutsche 15-Rupien-Goldstück, Money-Trend, 1/2003, Das deutsche 15-Rupien-Goldstück
Peter Schlobach, Deutsche Kolonien Teil 8b: Münz- und Naturalgeld in der ehemaligen Kolonie Deutsch-Ostafrika. Money-Trend 4/2008
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see also
http://www.zeno.ru/showgallery.php?cat=9067
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Peter Schlobach: notes in his articles.

Thanks to those who gave me permission to use their pictures

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Westfälische Auktionsgesellschaft, wag-auktionen
Welz, stephanwelzandco
Martin Weller, weller
and all those I forgot to list here